

The Roles of the Community, Private Sector, and Local Authority  
in Recycling in Bangkok's Gated Communities

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A Thesis Submitted in Partial Fulfillment of the Requirements  
for the Degree of Master of Arts Program in International Development Studies  
Faculty of Political Science  
Chulalongkorn University  
Academic Year 2011

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เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ที่ส่งผ่านทางบัณฑิตวิทยาลัย

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ต่อการริเริ่มโครงการหมู่บ้านจัดสรรในกรุงเทพมหานคร

นางสาวภัทรา จิรวินัย

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาศิลปศาสตรมหาบัณฑิต  
สาขาวิชาการพัฒนาระหว่างประเทศ  
คณะรัฐศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย  
ปีการศึกษา 2554  
ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

Thesis Title        THE ROLES OF THE COMMUNITY, PRIVATE SECTOR, AND  
                               LOCAL AUTHORITY ON RECYCLING IN BANGKOK'S  
                               GATED COMMUNITIES

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Field of Study        International Development Studies

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Accepted by the Faculty of Political Science, Chulalongkorn University in  
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ภัทรา จิรวีศัลย์: บทบาทของหมู่บ้าน ภาคเอกชน และ หน่วยงานภาครัฐในท้องถิ่น ต่อการรีไซเคิล ในหมู่บ้านจัดสรรในกรุงเทพมหานคร (THE ROLES OF THE COMMUNITY, PRIVATE SECTOR, AND LOCAL AUTHORITY IN RECYCLING IN BANGKOK'S GATED COMMUNITIES) อ. ที่ปรึกษา  
 วิทยานิพนธ์หลัก: ดร.คาร์ล มิดเดิลตัน, 150 หน้า.

การรีไซเคิลขยะ ซึ่งเป็นหนึ่งในสิ่งที่จะต้องการสหประชาชาติส่งเสริมสำหรับการพัฒนาที่ยั่งยืนนั้น ไม่ได้ ถูกนำมาปฏิบัติมากเท่าที่ควรในครัวเรือนในกรุงเทพมหานครซึ่งปัญหาขยะเป็นเรื่องใหญ่ งานวิจัยนี้มุ่งเน้นไปที่การ รีไซเคิลในหมู่บ้านจัดสรรในกรุงเทพมหานคร ซึ่งเป็นแหล่งชุมชนที่มีความเหมาะสมต่อการเป็นกลุ่มเป้าหมายของ โปรแกรมการคัดแยกขยะ เนื่องจากจำนวนที่มีอยู่ทั่วไปของหมู่บ้านจัดสรรเหล่านี้ และระดับการบริโภคที่สูงของผู้อยู่อาศัย ในงานนี้มีการพิจารณาบทบาทของผู้ที่มีส่วนได้เสีย 3 กลุ่ม ได้แก่ หมู่บ้านจัดสรร เจ้ารับซื้อขยะรีไซเคิล และองค์การบริหารส่วนท้องถิ่นซึ่งจัดการเรื่องขยะ งานนี้มุ่งทำความเข้าใจบทบาทของผู้ที่มีส่วนได้เสียเหล่านี้ที่มีต่อการรีไซเคิลในหมู่บ้าน การวิจัยได้จัดทำกับหมู่บ้านจัดสรร 23 แห่ง ซึ่ง 4 แห่งในนั้น ถูกเลือกมาเป็นกรณีศึกษา อีกต่างหาก ผู้ถูกสัมภาษณ์ ได้แก่ สมาชิกหมู่บ้าน เจ้ารับซื้อขยะรีไซเคิล เจ้าหน้าที่ท้องถิ่นที่ขึ้นอยู่กับองค์การบริหารส่วนท้องถิ่นกรุงเทพมหานคร (กทม) และเทศบาล ผลการวิจัยชี้ให้เห็นว่า ผู้ที่มีส่วนได้เสียสองรายแรกมี บทบาทในโครงการคัดแยกขยะ โดยลูกบ้านคัดแยกและต่อมาจะถูกเก็บและขายให้เจ้ารับซื้อ (ซึ่งจะขายต่อให้ ร้านรับซื้อเจ้าใหญ่ต่อไป) เพราะไม่มีระบบรีไซเคิลอย่างเป็นทางการในแง่ของหมู่บ้านจัดสรร ผลการวิจัยชี้ให้เห็นว่า ต้นทุนทางสังคมในแง่ของ กรรมการหมู่บ้าน บุคคลากรของหมู่บ้าน ผู้นำในเรื่องรีไซเคิล อาสาสมัคร และเครือข่าย อีกทั้งความสะดวกโดยเฉพาะอย่างยิ่งในแง่ของการมีพื้นที่ส่วนกลางที่ใช้เก็บของรีไซเคิล มีส่วนสำคัญ อย่างยิ่งต่อความสำเร็จของโครงการรีไซเคิล ในขณะที่เดียวกันสถานะทางเศรษฐกิจอาจมีแนวโน้มว่ามีส่วนสำคัญ แต่จะต้องมีการวิจัยเพิ่มเติมเพื่อหาข้อสรุป ในแง่ของร้านรับซื้อ ความมั่งคั่งแพร่หลายและความเชื่อถือได้ของเจ้า รับซื้อเหล่านี้มีบทบาทสำคัญ ในขณะที่เดียวกัน รัฐบาลท้องถิ่น อันได้แก่ กรุงเทพมหานคร (กทม) ผลการวิจัย ชี้ให้เห็นว่า กทม ไม่มีบทบาทใดในโครงการรีไซเคิลของหมู่บ้านจัดสรรเหล่านี้ อย่างไรก็ตาม วิทยานิพนธ์นี้ชี้ให้เห็นว่า อันที่จริงแล้ว กทม ควรจะมีบทบาทสำคัญในการทำให้สถานการณ์ที่เป็นอยู่ดีขึ้น งานวิจัยได้เผยถึง ปัจจัยที่เป็นไปได้ 3 ปัจจัย ซึ่งชัดเจนว่ามีให้ กทม มีส่วนช่วยในเรื่องรีไซเคิลให้มากขึ้นกว่านี้ ปัจจัยแรก ได้แก่ ความไม่ทุ่มเทอย่างเต็มที่ของ กทม ในเรื่องรีไซเคิล อันมีสาเหตุมาจากการเปลี่ยนผู้นำ การขาดกำลังคนภาคสนาม และการขาดจิตสำนึกของประชาชน ปัจจัยที่สองที่เป็นไปได้ คือ แนวโน้มการขัดผลประโยชน์ของผู้มีส่วนร่วม ทั้งหลาย ซึ่งได้ผลประโยชน์จากระบบรีไซเคิลแบบที่ไม่เป็นทางการเช่นที่เป็นอยู่ ปัจจัยที่สาม คือ การที่ กทม ไม่สามารถออกกฎหมายบังคับเพื่อส่งเสริมการคัดแยกขยะได้ เนื่องจากขาดอำนาจที่แท้จริง และขาดระบบรองรับ และนโยบายต่างๆที่เหมาะสม

สาขาวิชา การพัฒนาระหว่างประเทศ.....ลายมือชื่อนิสิต.....  
 ปีการศึกษา 2554.....ลายมือชื่ออ.ที่ปรึกษาวิทยานิพนธ์หลัก.....

# # 5381034324: MAJOR: INTERNATIONAL DEVELOPMENT STUDIES  
 KEYWORD: RECYCLING/SOURCE SEPARATION/ BANGKOK/HOUSEHOLD  
 SOLID WASTE/ GATED COMMUNITIES/ MOO BAAN/PRIVATE RECYCLING  
 AGENT/LOCAL AUTHORITY/BMA/BANGKOK METROPOLITAN  
 ADMINISTRATION

PATRA JIRAWISAN: THE ROLES OF THE COMMUNITY, PRIVATE  
 SECTOR, AND LOCAL AUTHORITY IN RECYCLING IN BANGKOK'S  
 GATED COMMUNITIES. ADVISOR: CARL MIDDLETON, Ph.D.,150 pp.

Recycling, as proposed by the UN to be one of the means to achieve sustainable development, has not been practiced sufficiently at the household level in Bangkok where waste problem is endemic. This research focuses on recycling in Bangkok's gated communities of which their prevalence and consuming-class residents render them an ideal target group for a source separation program. The roles of three major stakeholders were examined -- the gated community itself, the private recycling agent, and the local authority in charge of waste management. The goal is to understand the interrelated roles of these three stakeholders, and how they affect recycling efforts in gated communities. The research was conducted on 23 gated communities, out of which 4 were chosen for case studies. Interviews were conducted with community members, private recyclers, and officers at the Bangkok Metropolitan Administration (BMA) and the municipalities.

Findings indicates that the first two stakeholders were found to play an active role in the community recycling program as community residents sort waste to be collected for sale later to private recycling agents (who then sell it to bigger buyers), in the absence of a formal recycling system. In terms of the gated community, findings show that social capital – in the aspects of the community's committee, its supporting staff, its pro-recycling leader, volunteers, and networks -- as well as convenience especially of having a central storage area for recyclables play a crucial role in the success of a recycling program, while economic status may potentially play a role although further research is needed to confirm this. In terms of the private recycling agent, its availability and reliability play an important role. In terms of the local authority such as the BMA, it plays no role in the gated communities' recycling program. However, the research points out that the role of the local authority is, in fact, needed to improve the current situation. Findings reveal three potential factors that have been preventing the BMA from contributing more to recycling. The first is the lack of commitment from policymakers on recycling, which is caused by the constant change of leadership, the lack of staff in the field, and the lack of public awareness. The second is the potential conflict of interest on the part of different participants in the informal recycling system. The third is the impracticality of the BMA in issuing regulations to support source separation due to the lack of real mandate, and the absence of supportive system and the right policy mix.

Field of Study: International Development Studies Student's Signature .....

Academic Year 2011

Advisor's Signature .....

## ACKNOWLEDGEMENTS

First of all, I would like to give my profound appreciation to my thesis advisor, Dr. Carl Middleton, not only for all the encouragement, insightful comments, and practical advice I received while working on this thesis, but also for the inspiration that I draw from his passion at work, and basically his positive attitudes in all things. I have been very fortunate to have him both as my advisor and teacher.

I also owe much sincere gratitude to my other two committee members -- Dr. Jakkrit Sangkhamanee and Dr. Wijitbusaba Ann Marome – for their interest on the topic, their flexibility despite their very busy schedules, and their sharp and pointed advice that has significantly improved my work on this thesis.

My heartfelt appreciation also goes to all the people whom I talked to, although apologetically not all their names can be singly mentioned here. My special thanks go to Mr. Amornpong Thongbhakdi at TIPMSE for giving me necessary information through numerous interviews. I am also very grateful to P Poupey (Sin Sup), P Supachai (Maeg Mai), and P Jim (Discovery Bali Hii) for their information and earnest enthusiasm in recycling that shone through during our extended interviews. I am also indebted to the officers especially from the BMA, PCD, the Talingchun and Sai Mai districts, and the municipalities, whose name I withhold here for confidentiality reason. Their openness and willingness to offer valuable information for the research greatly enriched the content of this thesis. I also owe my gratitude to Krittika Lertsawat for offering very helpful information for the thesis. Without the input from these interviewees, the thesis findings would not be nearly as meaningful.

Finally, I would like to dedicate this thesis to George -- for being a true partner who has always unconditionally given me full support in whatever I do including my study in the MAIDS program and my hard work on this thesis, as well as for the many lively discussions we shared about interesting topics covered in class; and to Nicky – you are the inspiration for Mommy to want to somehow help make the world a better place for you to grow up in.

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**LIST OF ABBREVIATIONS**

BMA	Bangkok Metropolitan Administration
BMR	Bangkok Metropolitan Region
KPI	key performance indicator
PCPP	The Public Cleaning and Public Parks Unit (at the BMA's district level)
PHE	The Public Health and Environmental Unit
PP	The Policy and Planning Unit (at the BMA)
PR	public relations
SHNS	The Solid & Hazardous Waste and Night Soils Unit (at the BMA)
TIPMSE	Thailand Institute of Packaging Management for Sustainable Environment
UN	United Nations
WCED	World Commission on Environment and Development
WDF	The Waste Disposal Factory Unit (at the BMA)

## CHAPTER I

### INTRODUCTION

#### 1.1 Background of Study

As a rapidly growing and congested city of a middle-income country, Bangkok has been experiencing waste problems. The capital and its adjacent provinces making up the Bangkok Metropolitan Region (BMR) is suffering from a sustainability problem as widespread urbanization results in a massive amount of waste generated daily by the city. While the capital alone accounts for 9% of Thailand's population, it disproportionately generates 22% of total solid wastes (Pongtip Puvacharoen, 2011), 88% of which comes from households (Duangthip Arora, 2010). As much as one third of Bangkok waste is recyclable waste from materials that are plastic, paper, glass, and metal (BMA, Environmental Department, 2007). However, most of the 9,000 tons of daily wastes collected by the Bangkok Metropolitan Administration (BMA), the local authority in charge of waste management, are sent away to landfills in provinces outside of Bangkok (Benjamas Chotthong, 2001). Similar situations apply for local municipalities in charge of waste management in the BMR outside the jurisdiction of the BMA. (Muttamara et al., 2004). Costs incurred to the BMA due to such an end-of-pipe solution of waste collection, transportation and disposal are over US\$ 100 million annually (Suwanna Jungrungrueng, 2011). It is clear that this cannot be sustained in the face of ecological damage resulting from landfills, and the growing opposition to such landfills by nearby residents, not to mention the obvious strain on the government budget.

Having more resources compared to other local municipalities in the BMR, the BMA has started for years to minimize waste problems by encouraging the public to practice source separation by segregating and recycling household waste. Such



measure is also in line with the UN's approach to sustainable development<sup>1</sup> which sees recycling as part of waste management systems that place priorities on waste prevention and minimization (UN, Division for Sustainable Development, 2005). With the aim to reduce household solid waste and increase the recycling rate, the BMA has launched several PR campaigns, e.g., the campaign to separate wet and dry waste, the 5R<sup>2</sup> campaign, the 3R<sup>3</sup> campaign, the campaign to collect household recyclable, hazardous, and food waste separately on a scheduled basis, etc. In spite of these campaigns, so far public participation is still at a low level (World Bank, Thailand, 2003). Many of the BMA campaigns advocate source separation among the general public at large. The rest of them mainly focus on Bangkok's lower-income communities to be the target groups, as sales from recyclable wastes to private recycling agents are seen as incentive to supplement the income of these community residents. Similar campaigns targeting lower-income communities are also implemented by the local municipalities. Little effort has been made so far by the BMA or the BMR's municipalities to focus on other target groups, especially the middle-class households within the myriads of gated communities (moo baans) throughout Bangkok.

These middle-class gated community residents are, due to their higher income, of higher consumption level. Such consumption habits most likely result in much packaging wastes which could have been recycled, like plastic, paper, glass and metal. Such is a problem also currently faced by many other mega cities of developing countries, not only Bangkok. The number of residents living in these gated communities in Bangkok is big. According to data from the Bank of Thailand, over the past 20 years alone, there have been approximately 900,000 newly registered households within gated communities in the BMR (Bank of Thailand, 2011). If there is an efficient system and policy in place that will encourage and facilitate source separation among these households, the amount of recyclable waste handled by the

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<sup>1</sup> Sustainable development, as defined by the UN's World Commission on Environment and Development (WCED) in its Brundtland Report, refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987).

<sup>2</sup> 5R is for Reduce, Reuse, Recycle, Repair and Reject

<sup>3</sup> 3R is for Reduce, Reuse, and Recycle

local municipalities would be significantly cut back. On top of this, effective source separation of recyclable waste among households will eventually lead to further sorting of other types of waste once sorting habit is cultivated, resulting in much less cross-contamination between non-degradable and degradable waste, the latter a raw material for compost. This would mean much lower cost for waste management and much less waste going to landfills, making it more sustainable economically, socially, and environmentally.

It is therefore this thesis's aim to determine the main factors that drive the success and failure of waste segregation and recycling in gated communities in Bangkok, thus contributing to the success of activities gearing towards sustainable development with regards to the environment and the issue of waste management in particular. These are factors that belong to three stakeholders/actors whose interconnected roles are essential in source separation effort in gated communities. These three stakeholders are:

- Members of gated communities -- whose participation is absolutely key to successful recycling outcome. They are elected resident committees, (non-committee) residents, and hired administrative and field staff.
- Private recycling agents – individuals whose small business of purchasing household recyclables and selling them to bigger recycling shops or factories create a market incentive that drives recycling efforts in Thailand in the absence of any formal system or enforcement on recycling.
- The local authorities – in this case, the departments and units within the BMA, and municipalities with their roles in solid waste management in the BMR.

A part of the input for the research analysis is information collected from a number of gated communities that have joined the recycling program with a not-for-profit organization called TIPMSE (Thailand Institute of Packaging Management for Sustainable Environment) – an organization funded by a consortium of manufacturers

in the packaging industry in Thailand. Up until present, TIPMSE is cited by experts<sup>4</sup> to be the only organization targeting gated communities in the BMR in its campaign to get community residents to sort and recycle household recyclable waste which is then sold to any private recycling agents preferred by the communities (usually those with shops near the communities). The organization launched the campaign in 2008 starting with 2 communities that it worked with, and growing to around 25 at present out of 60 communities it had originally contacted to join at random. These are a mix of both upper and lower middle-class gated communities. The campaign thus offers a very unique opportunity for the study of waste recycling in the middle-class gated communities that this thesis will make use of.

## 1.2 Research Questions

The overarching research question for this thesis is:

*What are the chief factors that influence success and failure in recycling efforts in Bangkok's gated communities?*

The thesis will answer it by addressing three sub-questions as follows:

1. What are the most essential factors that lead to successful recycling among the most successful gated communities?
2. What are the most significant challenges that result in failed recycling among the least successful gated communities?
3. Are these success factors and challenges from the most and the least successful gated communities respectively reflected in the rest of gated communities that have joined TIPMSE, thus determining the outcome of their recycling efforts accordingly?

## 1.3 Research Objectives

The overarching research objective of this thesis is to understand the interrelated roles of the three major stakeholders – i.e., the communities, the private recycling agents, and the local authorities – in household recycling projects of gated

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<sup>4</sup> BMA1, BMA2, BMA3, and TIP1 (see description of these interviewee codes in Appendix A).

communities in Bangkok; and how the different roles played by each of these stakeholders result in successful or failed outcome of the recycling projects.

In order to achieve the overall objective, the research will fulfill the two objectives as follows:

- To determine the most essential factors belonging to the three stakeholders that drive the success of recycling projects
- To determine the most significant challenges from the three stakeholders that cause failure in recycling projects

#### **1.4 Conceptual Framework**

The broad framework of this thesis rests upon the premise of sustainable development, the concept which has been propelled by the UN's World Commission on Environment and Development (WCED) and laid out in its Brundtland Report titled "Our Common Future", and incorporated into a UN's action plan called "Agenda 21" which was an outcome of a UN conference held in Rio de Janeiro in 1992. According to the Brundtland Report, sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987). The foundation of such thinking is the idea of three overlapping components -- environmental, social, and economic -- with sustainability at the core (IUCN, 2006). With regards to the environmental component, one of the means to achieve sustainable development is recycling, as specified in Agenda 21 (UNCED, 1992). That is because resource recovery can reduce waste flow associated with rising living standards as a result of development, and avoid future liabilities (UNEP, 2011).

Such a need for resource recovery is particularly urgent for maintaining sustainability in global industrializing megacities where extensive production and consumption generate alarming amounts of waste to be managed. Examples are urban areas in Asia which produce as much as 760,000 tons of municipal solid waste per

day, according to the World Bank (Terazono et al., 2005). As production and consumption increases, municipal solid waste per capita generation also increases (ibid), threatening the sustainability of the development of these cities when such waste is not managed efficiently. Although such a problem is less severe in high-income countries (such as Japan, South Korea, Singapore), that faced by numerous middle-income countries in the region is rife and growing due to the increasing rate of waste generation and the lack of appropriate waste management as a result of institutional, financial, technical, regulatory, knowledge, and public participation shortcomings (Ngoc & Schnitzer, 2009). In these urban cities where landfill is still the dominant disposal method for most types of waste despite its limitation due to ensuing environmental degradation and social problem, resource recovery or recycling, although gradually being recognized, is not done sufficiently.

Hence, in shedding light on elements that affect the outcome of recycling effort in gated communities in Bangkok, this thesis explores the subject of recycling in the high-growth, rapidly growing city of Bangkok, thus helping to improve the likelihood for sustainable development of the city. Such knowledge can also be applied to the myriad of other cities in the developing world facing similar waste issues.

There are four stakeholders in the Bangkok's gated community recycling scheme. These are the gate community, the private recycling agent, the local authority, and TIPMSE. While the role played by TIPMSE – e.g., initiating contact with the communities, providing training on waste sorting, providing sorting bins, and providing contacts of recycling agents nearby the communities -- is uniform throughout the different gated communities that join its recycling program, roles played by the other three stakeholders vary across different gated communities. Therefore, only these other three stakeholders will be part of the thesis framework.

#### **1.4.1 Stakeholder -- The Gated Community**

A gated community comprises of 3 different types of members – the residents, the elected committee, and the administrative and field staff. While residents are

people who live inside the community, the elected committee is a group of residents who are elected every 2 years by other residents of the community in order to be in charge of decision making on key issues that affect the overall well-being of the community and its members. Once elected, committee members then elect a chairperson. The administrative and field staff is usually hired by the committee from outside the community to manage and run the community's daily operation. In terms of a recycling project within a community, the role of the residents is to segregate household recyclables from solid waste and bring them out on the curbs for collection usually by the community staff (and to be sold later to private recycling agents). The role of the committee is to approve the use of staff and any resources belonging communally to the community for the recycling project. The role of the administrative staff is to oversee the work of the field staff who usually are ones who collect recycled waste in a recycling program, as well as to coordinate with different parties for the success of the project. The Literature Review in Chapter 2 contains more details on the gated community (Section 2.3) and a diagram of the typical structure of the three types of members belonging to this stakeholder (Figure 2.2).

#### **1.4.2 Stakeholder -- The Private Recycling Agent**

The private recycling agent plays an important role by going into the community to buy recyclables collected from all participating residents (usually by community's staff). The monetary value of recyclables offered by the agent acts as an incentive for residents to recycle, in the absence of a formal recycling system set up by the authority.

#### **1.4.3 Stakeholder -- The Local Authority**

Within the capital of Bangkok, the BMA's Environmental Department and its 50 District Offices are in charge of waste management, while in the wider Bangkok Metropolitan Region (BMR) outside of the capital, the Public Health and Environmental (PHE) Unit within each municipality is in charge. These waste management departments of both the BMA and municipalities operate under the framework of the Public Health Act of 1992 and the Public Cleansing and Orderliness

Act of 1992. Refer to Chapter 2 Literature Review for detail of institutional and policy frameworks of these local authorities (Section 2.5).

#### **1.4.4 Factors from Stakeholders**

The framework of the research is also driven by factors belonging to each of the three stakeholders that influence the successful and failed outcome of a community's recycling project. Based on the literature review of existing relevant research (see Chapter 2 Literature Review), baseline factors associated with each of these three stakeholders have been identified. Although these are factors that may not belong specifically to middle-class gated communities, they should provide sound basis for this thesis. The baseline factors identified in the Literature Review section are:

Factors associated with the gated community:

- a. Social Capital
- b. Convenience
- c. Economic Status
- d. Civic Mindset on Waste Issue
- e. Perception on Recycling
- f. Children

Factors associated with the private recycling agent:

- a. Availability
- b. Reliability

Factors associated with the local authority:

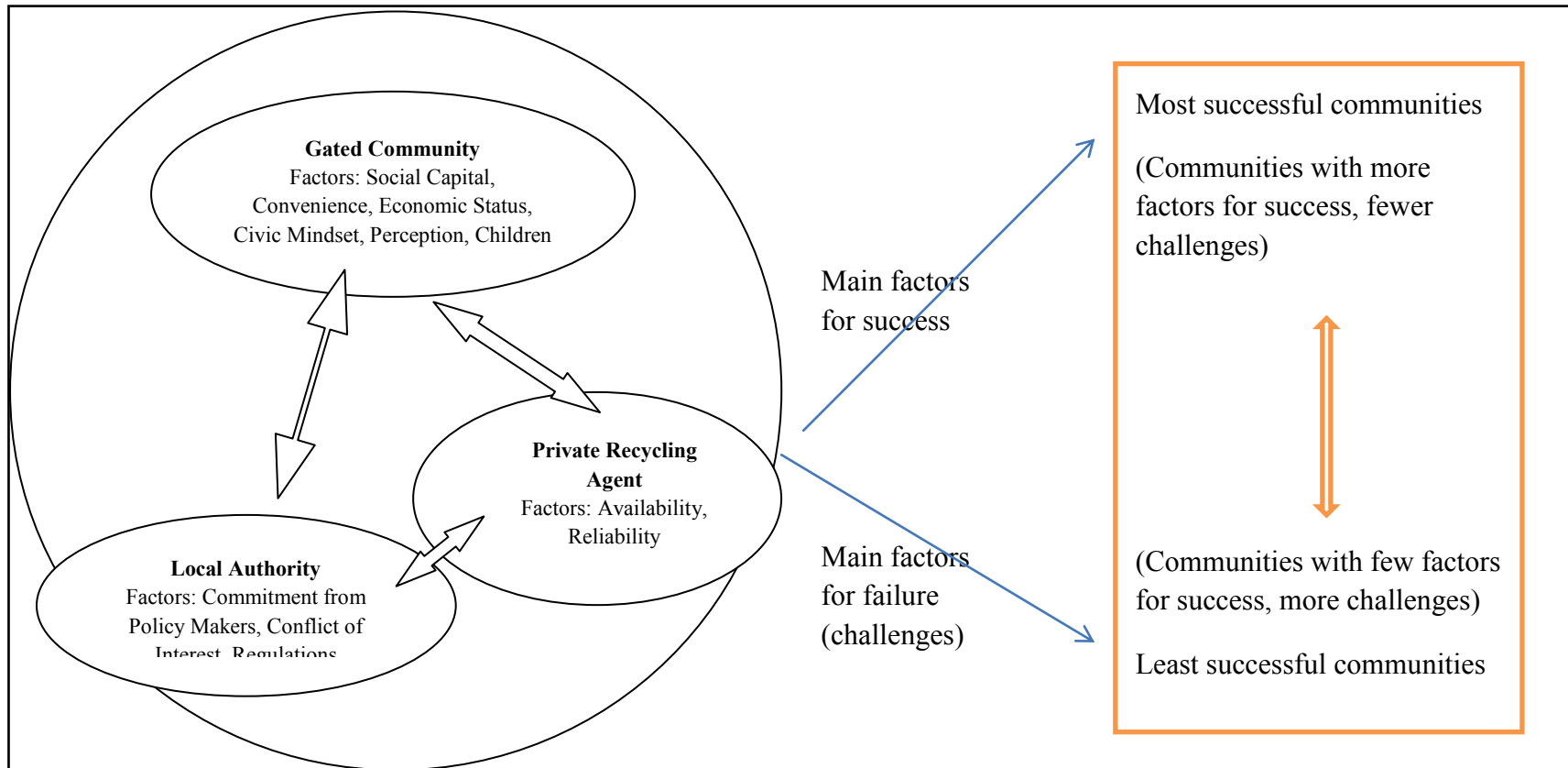
- a. Commitment from Policymakers on Recycling
- b. Conflict of Interest by the Waste Collection Department or its Personnel
- c. Regulations

Based on these baseline factors, the thesis would identify the most essential factors/challenges that determine the outcome of recycling efforts particularly for

Bangkok's gated communities, resulting in either their success or failure. As illustrated in Figure 1.1 of overall conceptual framework below, the more success factors and the fewer challenges that a gated community has, the more successful the recycling outcome is, and vice versa.



Figure 1.1: Conceptual Framework of Stakeholders and Factors



*Note: The diagram depicts the relationship of the three stakeholders and their factors that influence recycling outcome of gated communities in Bangkok*

## Research Methods

In order to understand overall situation of recycling in gated communities and the significance of factors influencing them, the research was qualitative in nature. The research was conducted on 23 gated communities that has joined TIPMSE's recycling program. Four out of these 23 communities were also used as case studies. Since these 23 communities make up a mix of both upper and lower middle-class communities based on average land size which is use as an approximate proxy for the economic status of residents in each community as a whole (see Graph 6.1 in Chapter 6), they could thus roughly represent the general population of gated communities throughout the Bangkok area. Information from relevant private recycling agents and local authorities were also sought. All in all, a total of 69 people from all three stakeholders plus TIPMSE were interviewed. Information obtained was triangulated among interviewees for confirmation. Table 1.1 below shows a summary of interviewees. (For a breakdown on interviewee types, see tables in Appendix A.)

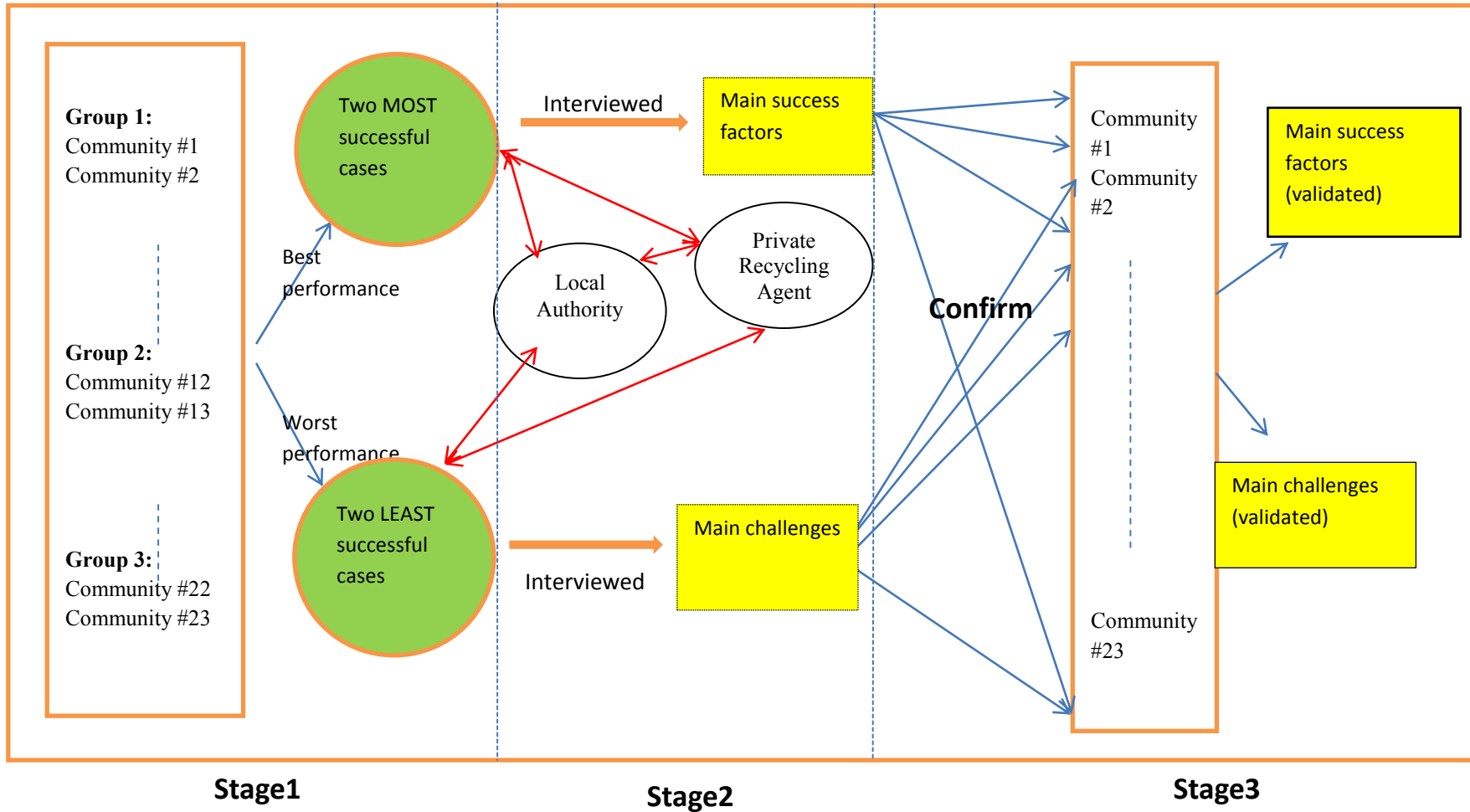
Table 1.1: Summary of interviewees

<b>Interviewee Type</b>	<b>Total Number</b>
Random resident interviewees	23
Key informants	46 <sup>5</sup>
Total	69

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<sup>5</sup> Key informants came from all three stakeholders -- gated communities, private recycling businesses, and local authorities.

Figure 1.2: Overall Research Process



The process that this research was conducted can be divided into 3 stages as seen in Figure 1.2 above, and described in detail as follows.

**STAGE 1: Grouping TIPMSE's gated communities according to the participation rate of recycling households, and selecting case studies**

The objective of this stage is to select 2 best- and 2 worst-performing gated communities as case studies based on their participation rates of households that join the recycling program. In order to identify them, initial interviews with all 23 gated communities were conducted among key informants, such as committee members or administrative staff, who have good knowledge about the recycling experience within their communities. The list of the 23 communities and their key informants who were interviewed as well as their locations is in Appendix A's Table A1. Data on the current number of households that join the recycling program and the total number of households in each community, as obtained from key informants, were used to derive the participation rate of recycling households for each community.

$$\text{Participation Rate of Recycling Households for Each Gated Community} = \frac{\text{(the number of households that join the program)}}{\text{(the number of total households)}}$$

The higher the participation rate, the better the recycling performance of that community<sup>6</sup>. This criterion was used to divide the 23 gate communities into 3 groups – **Group A** for the more successful gate communities, **Group C** for the less successful ones or ones that have dropped out of the program, and **Group B** for ones in between.

The top two gate communities in Group A and the bottom two in Group C were then selected to be the four case studies for use further in the research. The result

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<sup>6</sup> Note that the validity of the derived participation rate (i.e., the recycling performance of a community), depends tremendously on the validity of data obtained from the key informant of the community.

is that Maeg Mai (located in the Sai Mai district of the BMA) and Sin Sup (in Pathumthani Province’s Rangsit area bordering Bangkok) were selected from Group A, and Bali Hii (also in the Rangsit area) and Laddawan Pinklao (in the Talingchun district of the BMA) from Group C, making up the 4 case studies. (See Sections 3.2 and 3.3 in Chapter 3.)

### **STAGE 2: Identifying factors for success and failure from case studies**

The purpose of this stage is to identify factors for success and failure from the four case studies. To do this, in-depth, semi-structured interviews were conducted with key informants and random residents who are members of gate communities in the 4 case studies, as well as with informants from the other two stakeholders – the local authority and the private recycling business. (See sample interview questions in Appendix B.) Data triangulation was done to confirm findings among interviewees. At this point, findings only apply to case studies. The next stage would be needed in order to confirm whether they are applicable throughout the rest of the gate communities. Table 1.2 summarizes the number of interviewees in each case study. (For a detailed breakdown of interviewees, see Appendix A’s Table A2 and Table A3.)

Table 1.2 Summary of the Number of Interviewees in Case Studies

<b>Case Study</b>	<b>Key Informants</b>	<b>Random Interviewees</b>
Maeg Mai	6	4
Sin Sup	5	7
Discovery Bali Hii	5	9
Laddawan (Pinklao)	4	0

### **STAGE 3: Validating findings for a wider gated-community population**

The purpose of this stage is to confirm that findings from case studies could be applied to the rest of the 23 gated communities. In order to do this, findings from the initial interview with the key informant at each community (Stage 1 above) as well as

from any follow-up interviews if needed, were compared against findings from field research conducted on the case studies. If both findings point in the same direction, then they are confirmed. If not, then further research would be needed.

### **1.5 Research Limitation**

The research was limited to gated communities which join TIPMSE's recycling program. Due to the clustering of these communities along the northern part of Bangkok, they, therefore, might not be taken as systematic representatives of all of Bangkok's gated communities.

The validity of findings in this research depends tremendously on the validity of data obtained from the main contact person of each gated community; as these data are used to derive the participation rate of households that join the recycling program of each community, i.e., its “recycling performance”. This rate is used as the criterion for selecting case studies upon which the main analysis of this thesis is based, and also for grouping all the gated communities with which findings from case studies are validated. The lack of data triangulation in these gated communities to derive the participation rate is, therefore, one limitation of the research. (That said, the fact that the participation rate of recycling households of the 4 case studies point to the same direction as findings from these gated communities indicates the effectiveness of this criterion nonetheless.)

Another limitation is that the research does not account for the sale of recyclables outside of the TIPMSE's program. This includes recyclables sold by residents who take the waste out to sell directly to recycling shops outside the communities, recyclables that are sorted and left purposely to be collected by municipal collection crews which will likely separate them out for sale, or those that residents sort and give to their helpers/maids for the latter's own sale. The research assumes that these types of source separation do not vary across communities, in order for it to focus solely on recycling activities within the TIPMSE' program.

Finally, in the case of Laddawan (Pinklao) which is the 4<sup>th</sup> case study, the researcher was only allowed to interview its administrative person and an ex-committee chair. Other residents were not accessible since Laddawan is a community whose residents demand high privacy. Nevertheless, these two interviewees were key informants so the researcher assumes that information gathered from them is sufficient to draw a conclusion for the case.

### **1.6 Research Scope**

The research was conducted on gated communities that have joined TIPMSE's recycling program. Several of these gated communities are located in the BMR but outside the BMA jurisdiction -- in the Rangsit area (in Pathumthani province) and Baangbuathong area (in Nonthaburi province) that border the City of Bangkok. During case studies of these gated communities, officials from relevant local municipalities were therefore interviewed, in order to obtain information pertinent to these case studies. The general emphasis regarding local authorities in this thesis, however, is still on the BMA since it is by far the biggest local authority that oversees a much more sizable population compared to each of the other municipalities in the BMR. Many of the BMA's issues to be discussed in the thesis are still very much relevant to these other local authorities within the BMR nonetheless.

### **1.7 Significance of Research**

As will be demonstrated later in the Literature Review (Chapter 2), there has been research done that covers issues of solid waste in Bangkok and cities in other countries, the management of and campaigns on solid waste at the BMA, the welfare and social concerns of impoverished people who are waste pickers and scavengers, the recycling experience at a local Bangkok school, etc. However, research has not been found specifically on recycling in Bangkok's middle-class gated communities whose number is vast throughout the Bangkok area, especially from the perspective of the three aforementioned crucial stakeholders whose roles undoubtedly affect the outcome of recycling projects. This research will, therefore, fill in this significant

knowledge gap. The findings from this research can contribute to the work of TIPMSE, one of whose projects is to campaign for gated communities in the Bangkok Metropolitan Region to recycle waste. Research findings can also contribute to the work of authorities in charge of waste management in Bangkok, by informing their policies and practice with regards to household waste segregation and recycling among the middle-class gated communities. Some of the findings may also be applicable to the general public as well. Ultimately, this research on recycling in such Bangkok's middle-class communities can contribute to the promotion of sustainable development -- in the environmental component in particular -- in mega cities of middle income countries which Bangkok represents.

### **1.8 Ethical Issues**

In all interviews, the researcher obtained permission from interviewees before using their information in the thesis. For confidentiality, abbreviations were used to represent the interviewees.

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

The rest of the thesis that follows starts with the Literature Review in Chapter 2. Chapter 3 categorizes the 23 gated communities in which this research were conducted into three groups based on the recycling performance of each community using the household participation rate in the community's recycling program as the criterion. The two most successful gated communities (Maeg Mai and Sin Sup) and the two least successful gated communities (Discovery Bali Hii and Laddawan Pinklao) were also identified for use as case studies in the following chapters. The case studies of the two most successful gated communities and those of the two least successful gated communities are discussed in Chapter 4 and Chapter 5 thus answering the first and second research questions respectively. Chapter 6 takes the results from the four case studies and juxtaposes them with those from the rest of the 23 gated communities in order to validate findings from case studies against a bigger



sample, thus answering the third research question. Finally, Chapter 7 makes a conclusion and recommendations in light of all the findings in this research.

## **CHAPTER II**

### **LITERATURE REVIEW**

The literature review will start by discussing the magnitude of solid waste problems in Bangkok due to lack of source separation at the household level, and the significant potentials that gated communities can offer in alleviating such problems if they make the effort to recycle more. Then the review will substantiate the importance of the three actors whose roles are interrelated and crucial in supporting successful recycling. After that, literature and research relevant to each actor will be reviewed and knowledge gaps identified. Based on this review, a baseline set of factors determining successful and failed recycling outcome will also be identified for each stakeholder, offering a basis for this thesis to conduct its research on gated communities.

#### **2.1 Background: The Significance of Solid Waste Issues in Bangkok**

Management of municipal solid waste, a major part of which is residual waste from households, is always a challenge that local governments have to face. The issue is especially pronounced in rapidly growing cities in developing countries in the face of ever-rising amounts of waste due to the increase in urban population, incomes, and consumption. Such is the great challenge faced by the local authorities in Bangkok. Due to rapid urbanization that has resulted in changes in people's lifestyles and rising incomes as experienced by many primate cities with an expanding middle class, Bangkok residents have turned towards a higher consumption level and of consuming packaged products resulting in much recyclable waste which is estimated to be as much as 30-40% of waste collected by the BMA (Governor Abhirak Heralds 7.5% Waste Reduction, 2005). However, not enough has been done to segregate such waste at the household level. A paper co-authored by officers at BMA's garbage disposal division cited the household recycling rate to be only 1% (Muttamara et al., 2004).

Thus minimal source separation at the household level where most of the waste is generated, with a large proportion generated by middle-class households, results in an unnecessarily huge amount of waste to be collected, transported, and disposed of. So far, most segregation and recycling efforts are done informally by the government's trash collectors and informal recyclers. It was estimated that the BMA's trash collectors recover around 400 ton of recyclables per day (Panate Manomaivibool, 2005). But their unofficial sorting means prolonged trash collecting and transporting time and higher waste management cost incurred to the BMA. A paper by Valin (2001) shows that, on an equal amount of trash collected, the BMA needs the collection fleet of more than twice the size of that in Kuala Lumpur as informal sorting results in low productivity of BMA's collection crews. Informal recyclers (25,000 of them nation-wide although their exact number in Bangkok unknown) also take a big role in recycling these solid wastes by either waste picking or scavenging at waste areas, or buying household recyclables then selling them to bigger private recycling shops that, in turn, sell to factories.

In any case, the lack of source separation results in high cross-contamination of waste (i.e., a big proportion of plastic, metal, or glass in the waste stream) which is one of the main barriers that hinders the production of compost out of biodegradable waste – the type of waste which makes up roughly 53% of Bangkok municipal solid waste (Muttamara et al., 2004). Thus, in the end, most waste goes to two landfills located outside Bangkok, the option of choice for as much as 90% of solid waste in Bangkok (Suwanna Jungrungrueng, 2011). However, landfills are both costly and becoming more and more difficult to gain public acceptance due to ensuing health and environmental issues ranging from the percolation of rain through the leachate, which affects the quality of nearby surface and underground water, to the major air pollution due to the gas generated during decomposition that is both toxic and inflammable, causing fire or explosions on some occasions (ibid).

It is, therefore, clear that waste segregation and recycling at the household level is at the heart of any successful waste management effort, if policymakers are to tackle the waste issue in a sustainable and integrated way. That is because the final

amount going to landfills can then potentially be reduced drastically, not only by the recyclable waste itself being taken out of the usual routes to landfills, but also by the fact that the largest portion of municipal solid waste -- biodegradable waste -- could then be in a better condition for being diverted to make compost products, such as natural fertilizers. Such an approach to waste minimization and recovery is one of the important measures for achieving sustainable development as advocated by the UN for sustainable development (UN, Division for Sustainable Development, 2005).

Hence, it should be of great interest to urban managers at the BMA to devise policies to facilitate successful waste segregation and recycling starting at the household level, the biggest source of municipal solid waste. And it is imperative for such policies to target the middle-class because of its expanding base as well as consumption level. For that reason, middle-class gated communities, where a normal range of 100 to 300 single- and/or town-homes are clustered, are especially best suited as targets for such policies. These gated communities have risen substantially over the past 20 years and now exist in abundance throughout the BMR. Not only are residents of these communities from the socio-economic class whose consumption habits produce much recyclable waste, but the fact that these households are clustered within communities also offers a unique opportunity for any recycling campaign to reach households *en masse*. A gated community offers the ability for its residents to arrange for a central drop-off point for recyclable wastes, as well as the ability for them to pool together their saleable waste and negotiate for a better price. Moreover, since such a community usually has an elected resident committee and/or hired administrative staff, they serve as an ideal point of contact for outsiders who come in touch with the community on waste recycling matters.

Since so far, the BMA has not yet targeted the middle-class gated communities, unlike what it does to the lower-income counterparts in open communities<sup>7</sup> by helping them setup community recycling programs such as its Community-Based Zero-Waste Management campaign (so called CBM) or the Waste for Eggs campaign, it would be necessary for a campaign to focus on middle-class gated communities as an important target group. Having said that, it should be pointed

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<sup>7</sup> Crowded, non-gated communities on small public streets and thoroughfares

out that there currently is one not-for-profit organization, funded by the Thai packaging industry and its partners, that has been working with such middle-class communities on recycling since 2008. Thailand Institute of Packaging and Recycling Management for Sustainable Environment (TIPMSE) has been helping around 25 of these middle-class communities in and around Bangkok to recycle. It initiated contacts with these gated communities via invitation letters to join in its recycling program. Upon joining the TIPMSE recycling project, the gated communities are provided recycling bins for different types of packaging waste, instructions on how to segregate waste, and information on private recyclers available in the area to which the gated communities can directly sell their recyclable waste. This thesis will therefore utilize these TIPMSE's gated communities as its samples when conducting field research on household waste segregation and recycling.

By conducting case studies on middle-class gated communities, this thesis aims to uncover the main factors that influence the recycling outcome of households in this dominant and ever-expanding, yet long-overlooked, sector of the public. Some of the resulting findings might also be applicable to other types of households or the public in general. In doing so, the research will contribute to the pool of knowledge that would help make sustainable development become a reality.

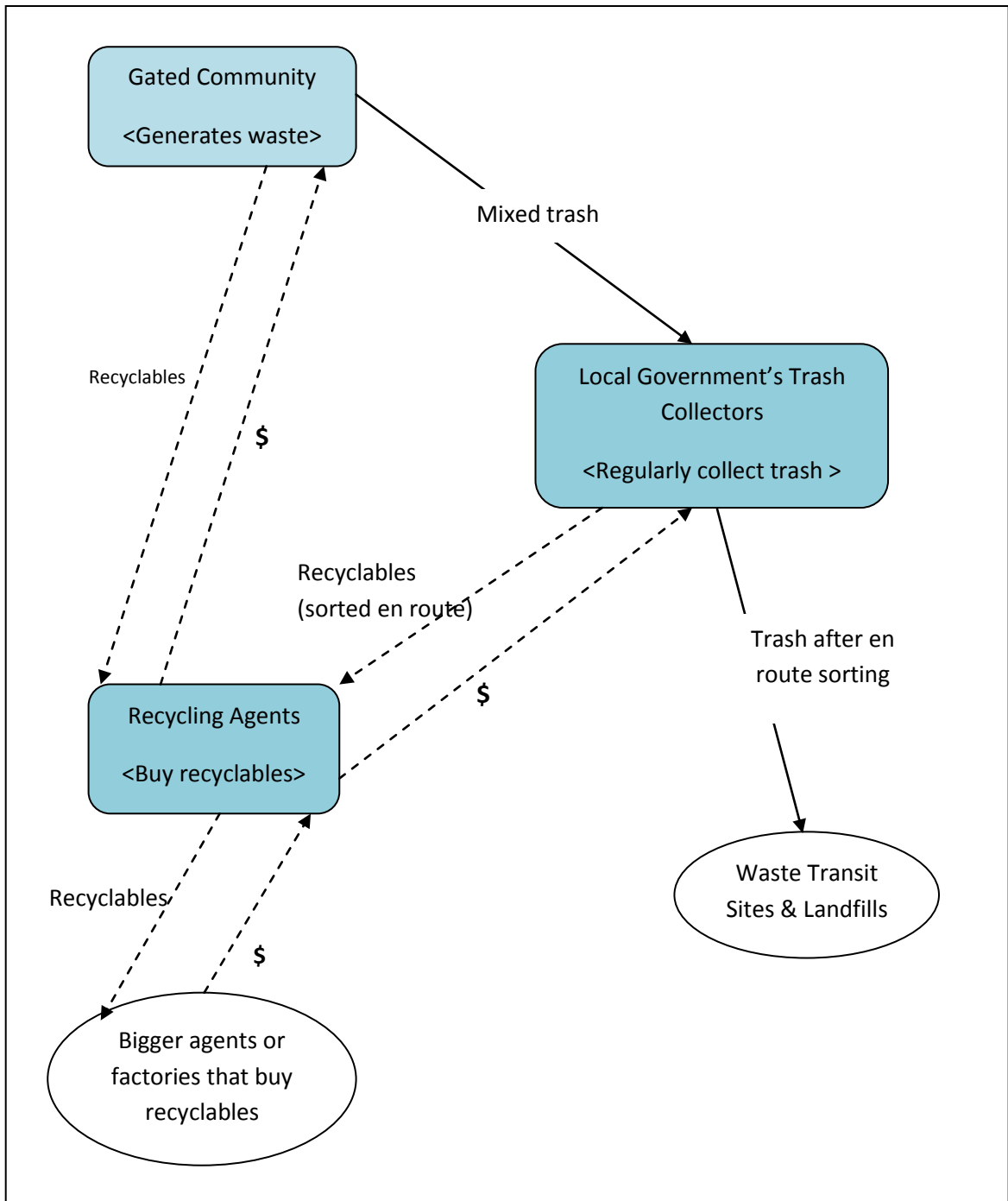
## **2.2 Three Stakeholders in Recycling Efforts of Bangkok's Gated Communities**

For any recycling effort among Bangkok middle-class gated communities to be successful, aside from households that need to participate, two more actors/stakeholders also play an important role. These are the private recycling agents and the local authorities. This three-actor model is the basic framework of this research and is drawn partly from the TIPMSE's gated-community model where the organization targets gated communities in its recycling campaign, and the comparable BMA's model used in lower-income open communities (i.e., the CBM project mentioned earlier). The three-actor model is also applied not only in Japan where household recycling is much more successful (National Renewable Energy

Laboratory, 1993), but also in many developing countries similar to Thailand. Countries like India, Indonesia, the Philippines, and China (Furedy, 1995) for example, all have the three stakeholders playing intertwining roles in recycling, albeit with varying degrees of success due likely to the difference in the nature and extent of the roles/responsibilities, or the absence thereof, that these three actors play.

Regarding the dynamics and relationship between the three stakeholders, gated communities generate household solid waste and pay fees to the local authorities -- i.e., the BMA for households inside the capital, and municipalities for those outside the capital -- for its trash collection service. At present, none of the local authorities have a formal system in place to handle recyclables. While traditional roles and responsibilities of a local authority are in crafting and implementing policies and practice of municipal solid waste management (e.g., setting trash pickup schedule, planning transportation routes for trash trucks, executing waste collection, determining waste disposal method, etc.), in practice, its waste collection crews also engage in informal sorting of recyclable waste during trash collection (mostly on their trash trucks during transit), and selling it for their own gains to recycling shops on the way to waste transit sites. The other actor -- the private recycling agent -- play an important role stepping in as buyers of recyclables from the public since the local government does not have a formal recycling system in place. These agents are usually individual shops that run a business of buying recyclables from anyone ranging from trash collectors, to waste pickers at public bins or dumpsites, to the public at large. They may buy recyclables that gated communities collect from residents who practice source separation like in the case of gated communities that join TIPMSE's recycling program; although most other gated communities in Bangkok do not allow these agents in, due to privacy and security reasons. In gated communities that sell collected recyclables to the agents, the rest of the trash is still left to be collected by the formal trash collectors. The diagram of this dynamics between the three stakeholders is described in Figure 2.1 below, where solid lines represent formal transactions and dashed lines informal ones.

Figure 2.1: Diagram of Dynamics between the Three Stakeholders



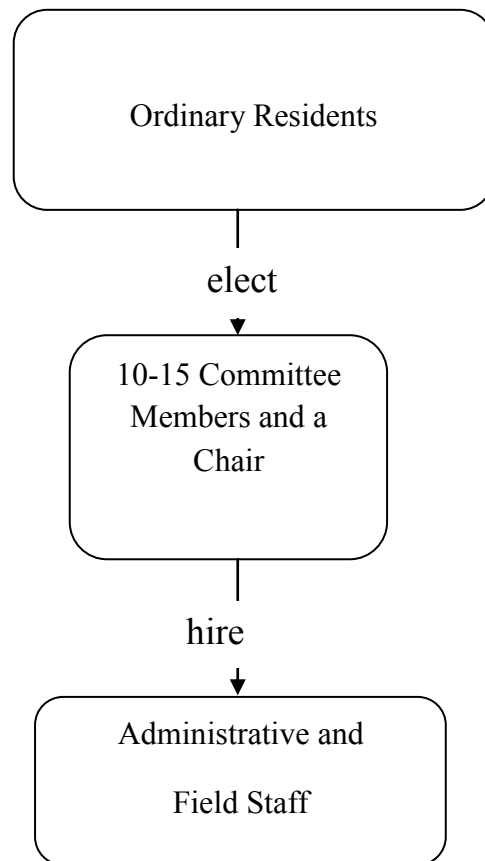
The following sections will discuss existing literature and research on the roles that each of these three stakeholders play in waste segregation and recycling. Based on this, factors that likely affect the outcome of recycling projects are identified for each of the three stakeholders, and knowledge gaps will be identified.

### **2.3 Stakeholder – the Gated Community**

Members of a gated community (called “moo baan” in Thai) usually consist of three different types. The first type of members is ordinary residents living there. The second is a group of residents who are elected by ordinary residents to form a working committee group in charge of decision-making on matters that affect overall well-being of the community on behalf of the residents. The committee generally is made up of 10-15 members including a chair person, with its term lasting for 2 years. They are mainly in charge of making decisions on issues such as buying equipment, hiring community’s staff, arranging contractors, creating community rules, initiating projects for the community, and communicating internal news to residents. The third group of the members is the community’s staff in the administrative office and in the field. The administrative staff in most cases are non-residents hired by the committee to work for the community on its administrative tasks, e.g., distributing newsletters, collecting membership fees that are to be accumulated towards the central community fund for general use, facilitating any public campaigns in the community, etc. They are also responsible for field staff hired for maintenance and upkeep works such as street sweeping, gardening, and repairing. Figure 2.2 depicts the typical structure of different types of members in a community.



Figure 2.2: Typical Structure of Different Member Types in a Community



So far, there is no research conducted on factors specific to middle-class communities in Bangkok regarding waste segregation and recycling – a knowledge gap that this research hopes to fill. However, some existing research is still applicable. Research by Sasikamon Thamrongvoraphorn (2005) is on patterns of participation in recycling in Bangkok among the general public, although this does not address gated communities per se. Research is also found on participation and/or attitude on waste recycling of Thai citizens in some major provinces outside Bangkok (Gittithorn Chalerm-sup, 2007), on residents of Ayudhya (Chachada Gunhachalee, 2007) and of Hatyai (Charuvichai-pong & Sajor, September 2006), although only the last one contains interesting findings that will be discussed below. Some findings for example that are on the environmental awareness of Thai people in general are found in research on comparison of such awareness among countries, e.g., findings from

Aoyagi-Usui, Vinken, & Kuribayashi (2003) and Kuribayashi & Aoyagi–Usui (1998). Last but not least, the case study of the Roong Aroon school in Bangkok (Panate Manomaivibool, 2005) in which the school’s own waste recycling campaign has found a success contrary to the failed attempt by the BMA in their campaign within the same geographical area, also contains relevant findings. The aforementioned body of research provides the basic set of factors that can potentially be applied to the gate community for the purpose of this thesis. Hence, derived from this pool of research, a list of factors can be compiled as follows.

### ***2.3.1 Factor: Social Capital***

According to the BMA officials in charge of the CBM projects, one of the main factors for the success of these projects is strong communities as well as strong leadership within the communities that results in their ability to rally people to participate in waste projects. This coincides with findings from Sasikamon Thamrongvoraphorn (2005) and Daniere, Takahashi, & Naranong (2002) which show that the level of social capital<sup>8</sup> in Bangkok communities has an effect on waste recycling behavior and public participation in environmental services.

### ***2.3.2 Factor: Convenience***

Panate Manomaivibool (2005) lists convenience as one of the key factors that motivate people to participate in source separation of waste. The research also shows how the recycling project conducted at the local Bangkok school has met more success than the CBM project in the neighborhood. One of the reasons is that the school makes it convenient for people to sort and recycle waste, while the BMA does not. Residents in middle class gated communities are usually people who spend a considerable amount of time at work. They would naturally perceive sorting trash as yet another burden on their very busy schedule. Therefore the less convenient the system is, the less chance for success the campaign has.

### ***2.3.3 Factor: Economic Status***

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<sup>8</sup> The concept of social capital is defined as the norms and networks that enable people to act collectively (Woolcock & Narayan, 2000)

An important socio-economic factor, economic status can potentially affect recycling behavior (Fenech, 2002). Sasikamon Thamrongvoraphorn (2005) shows that the economic status of Bangkok residents affects their recycling behavior – a notion in line with conventional wisdom of the West which believes that higher income level is usually associated with higher levels of environmental awareness. On the contrary, research by Charuvichaipon & Sajor (2006) shows that environmental awareness and public participation in waste segregation is similarly low in both lower and upper income communities in Hatyai – findings that might be applicable to Bangkok residents as well. The Chula Unisearch (2004) report, on the other hand, argues that generally, a higher income level of residents in communities that take part in Waste Recycling Bank projects results in a lower participation rate. Since a gated community generally comprises of households with similar income levels, it is important to understand whether and how different economic status among different communities affect recycling outcome, especially because in Thailand, recyclables can be sold for money.

#### **2.3.4 Factor: Civic Mindset on Waste Issue**

How people think about waste and their stance on the environment affects the way they deal with their household waste. An international survey of environmental attitudes and behaviors conducted by Aoyagi-Usui, Vinken, & Kuribayashi in 2003 could not identify significant relationships between progress and consciousness on environmental issues among middleclass in certain cities in developing countries such as in Bangkok and Manila. One hypothesis is that in less developed parts of Asia, there has yet to be a distinct environmental awareness despite economic progress experienced by these countries.

Charuvichaipong & Sajor (September 2006) found that members of all strata in the city of Hatyai, a big commercial and tourist municipality in southern Thailand, generally have a strong mindset that waste management is solely the responsibility of the municipality. These citizens essentially do not think that they are part of the waste problem, or that their participation is an essential part of the solution. Although the research is not conducted on Bangkok residents, the result might well apply to

Bangkok as such an expectation is prevalent among most residents there as well, especially among the middle class residents whose household waste is usually collected unseparated and with a very low monthly fixed fee.

### **2.3.5 Factor: Perception on Recycling**

Panate Manomaivibool (2005) makes an interesting point that Thai people may be reluctant to perform the environmentally friendly activity of sorting and recycling waste because they perceive loss in social status. If currently waste sorting and recycling is done mostly by scavengers and waste pickers, or by the poor to supplement their income by selling recyclables for a small amount of money – usually 100 to 400 baht a month per household (The Environmental Department Magazine, 2008) -- then it might affect the willingness of the middle class residents to adopt waste segregation and recycling habits. This would mean that such a social perspective should be considered when attempting to promote household recycling.

### **2.3.6 Factor: Children**

Panate Manomaivibool (2005), studying Roong Aroon School in Bangkok, suggests that children are an effective change agent in their homes. They usually participate actively in the recycling campaign at their school. Also children add to the reasons for the adults to adjust their behavior, in order to be perceived as doing the right thing. Similarly, Chula Unisearch (2004) also points out that students are influential in persuading their families to participate in the solid waste separation process.

## **2.4 Stakeholder – The Private Recycling Agent**

In Bangkok, informal recyclers fill in an important role left by lack of effective government policies on recycling by waste picking, scavenging, waste sorting during trash collection, and then selling sorted recyclables to the myriads of more-established private recycling agents with shops that exist throughout Bangkok that, in turn, sell this recyclable waste to factories that take in recyclables for refurbishment before these recyclables re-enter the production system.

For the purpose of this thesis, however, the focus is on the more-established private recycling agents and not on waste pickers or scavengers. The informal system of waste recycling in gated communities, which is the topic of this research, is made possible by recycling agents with shops that send pickup trucks to gated communities to weigh and buy recyclables for sale later to either bigger shops or factories. However, most research done on private recyclers in Bangkok focuses on the social aspect of scavengers and salengs (waste pickers on tricycles) in the informal sector (Furedy, 1995). Although such aspect deserves public attention because of the poor conditions of these people's social status, health, and general welfare, these issues are not much relevant for this thesis. That is because private recyclers who come into contact with Bangkok's gated communities would unlikely be the economically-deprived scavengers and salengs, due to their poor image and security concerns felt by residents of gated communities, (Panate Manomaivibool, 2005), not to mention the lack of capacity of these people to purchase waste in bulk from the communities. As such, factors that are likely to affect private recycling agents' ability to divert recyclables away from the waste stream (through a market mechanism) are identified below.

#### ***2.4.1 Factor: Availability***

The availability of the private recycling agents is clearly a factor since the agents are one of the three stakeholders, and therefore an integral part of the gated-community recycling framework. One key thing that TIPMSE offers to gated communities that join its program is the list of available private recyclers in the vicinities. This enables communities to find potential purchasers of waste. The BMA and any NGOs wishing to work with gated communities on recycling must keep this factor in mind.

#### ***2.4.2 Factor: Reliability***

Reliability here includes promptness and effectiveness in the way private recyclers operate. Fuji (2008) recommends that recyclables be picked up on a fixed-time and fixed-point basis for a source separation system. If that is implemented,

promptness in picking up recyclable waste by recyclable agents will be the key to the sustainability of the system. And since household recycling is done only voluntarily by the public, reliable and effective service from waste recyclers can easily be decisive factors that encourage or deter people from joining or dropping out of the recycling program.

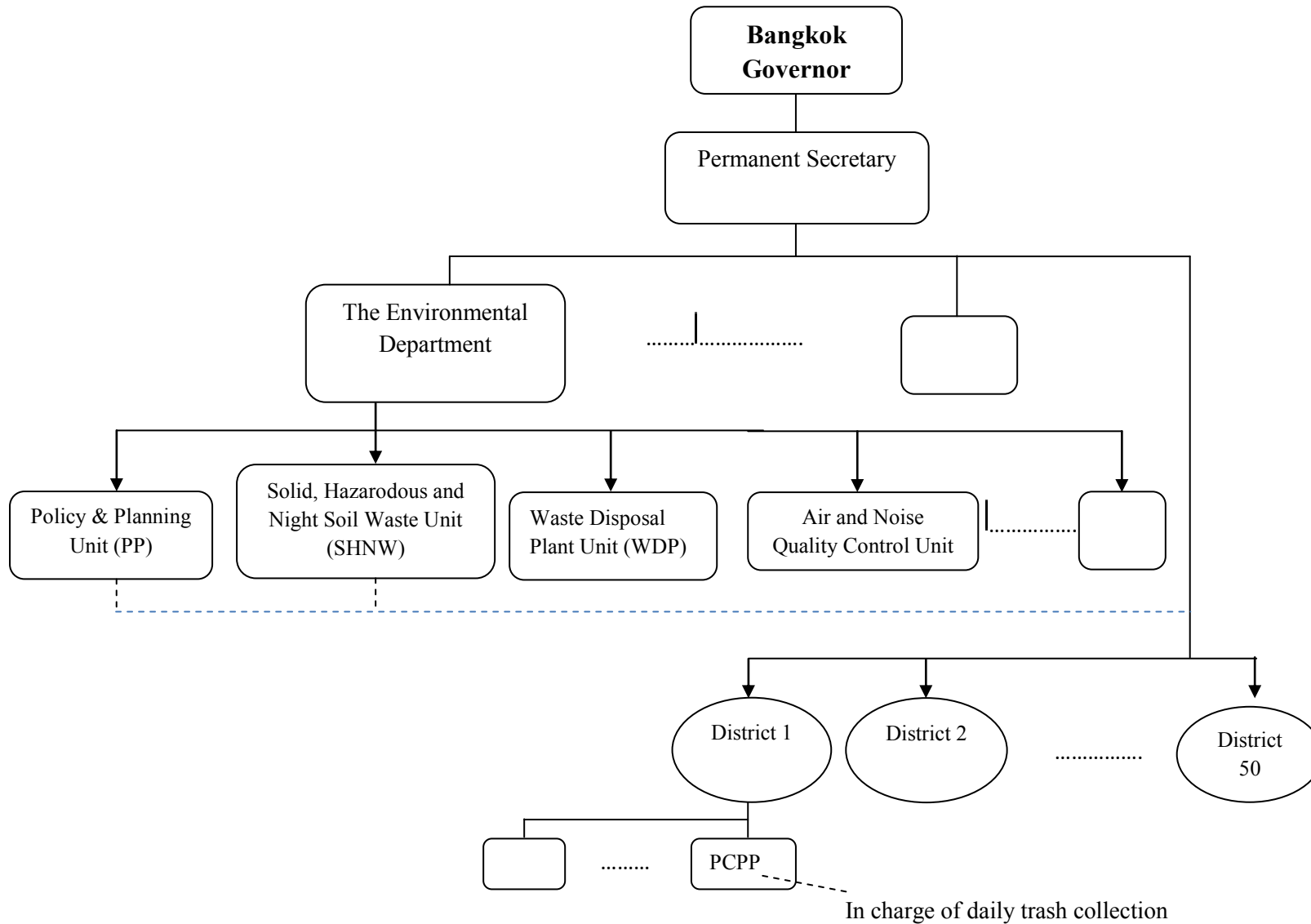
## **2.5 Stakeholder -- The Local Authority**

In the Bangkok Metropolitan Region (BMR), the BMA is the local authority in charge of all administrative matters of the 50 districts within the capital city, while municipalities are in charge of areas of the BMR outside the capital's 50 districts.

In terms of institutional framework, within the BMA, responsibilities for waste management are divided between the district offices and the BMA's Environmental Department -- the 50 district offices are in charge of the day-to-day operation of waste collection, while the Environmental Department is mainly in charge of overseeing and policy planning on waste collection. Within the 50 district offices, the Public Cleaning and Public Parks Unit (PCPP) under each district is in charge of collecting trash from households and most public areas. Within the Environmental Department, there are 3 units in charge of waste management. The first is the Policy and Planning Unit (PP) which is in charge of setting policy plans on the environmental issues for other units to follow. The second is the Solid, Hazardous and Night-Soil Waste Unit (SHNW), in charge of providing direction to and supporting the waste collection work of the 50 district offices. It is also in charge of collection of waste disposal fees, planning waste collection routes, and taking over waste sent to transit sites by the districts. The third unit is the Waste Disposal Plant Unit (WDP) which is in charge of planning for the final disposal of waste (Sirirut Sungsuwan, 2007). Figure 2.3 depicts the organizational structure of divisions of the BMA that are in charge of waste management.

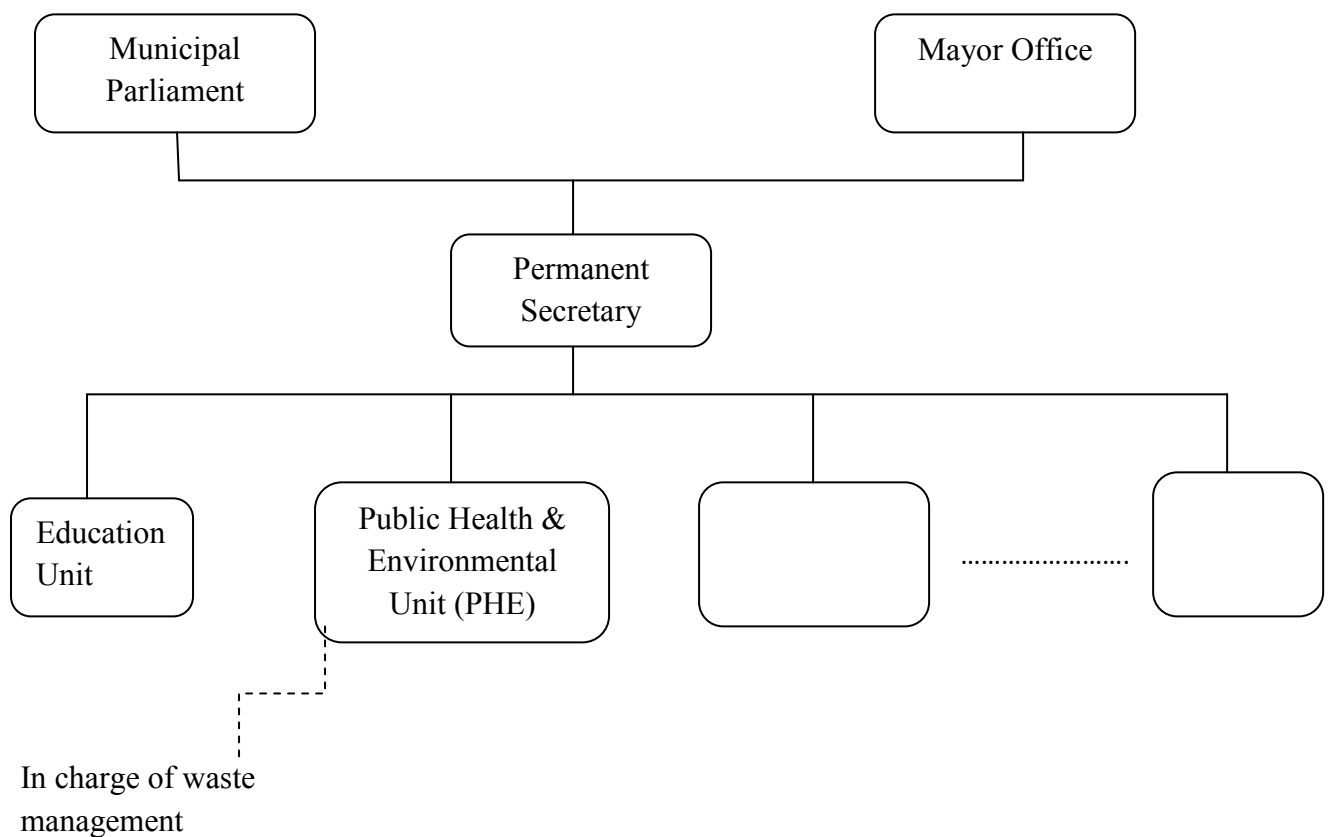
Figure 2.3: BMA's Offices in Charge of Waste Management

Source: Adapted from (Panate Manomaivibool, 2005: 22) and [http://203.155.220.118/info/Department/index\\_department12.htm](http://203.155.220.118/info/Department/index_department12.htm)



Within the BMR's municipalities outside the capital, the organizational structure is much simpler. There is usually one unit in charge of both policy planning and implementation regarding waste – the Public Health and Environmental Unit (PHE). Figure 2.4 depicts the organization structure of a BMR municipality outside the capital with a focus on the unit in charge of waste management.

Figure 2.4: Organization Structure of a BMR's Municipality



Source: From <http://www.nmt.or.th/chanthaburi/nayaiam/Lists/List/view.aspx>.

In terms of policy framework, both the BMA and the municipalities follow the Pollution Control Department (PCD)'s directive and derive their mandates with regards to the management of solid waste from two main acts – the Public Health Act of 1992 and the Public Cleansing and Orderliness Act of 1992 (Muttamara et al., 2004). The Public Health Act of 1992 gives mandates regarding waste management to local



authorities such as the BMA and BMR's municipalities outside the capital. The Public Cleansing and Orderliness Act of 1992 outlaws acts that hamper public health and orderliness such as littering on the streets and illegal dumping of waste, etc.; and gives power to local authorities to enforce the law. Both laws, nonetheless, contain no specific clause on managing recyclable waste, leaving it wide open for local authorities to come up with their own regulations and policy plans on that matter. While municipalities usually have no extensive policies on recycling, the BMA, as a local authority with much more resource, has its policies on recycling that have evolved through several Master Plans. (See Section 2.5.1 for details.)

At present, there is a large body of research that points to the shortcomings arising from the BMA as factors that hinder the success of source separation at the household level in general (Fuji 2008, Chula Unisearch 2004, Sirirut Sungsuwan 2007, Panate Manomaivibool 2005, etc.). However, no research is found to be conducted on the impact that BMA's waste management policy and practice has on middle-class gated communities specifically. The following section will discuss research findings on the BMA that, although not covering recycling in gated communities in particular, are relevant in identifying factors regarding the role of the BMA that could potentially impact household waste segregation and recycling practice in this type of community. The discussion will be arranged into different factors as identified below.

### ***2.5.1 Factor: Commitment from Policymakers on Recycling***

Up until around 1992, the BMA's waste management efforts had mostly been concentrated at the end stream, making sure that facilities and manpower were expanded to keep up with the rising amount of waste. Such were the policies in the first 3 BMA Master Plans (Sirirut Sungsuwan, 2007). From the 1st Master Plan (1977-1981) to the 3<sup>rd</sup> Master Plan (1987-1991), waste management projects evolved around plans to purchase more vehicles and equipment, build more facilities, increase the target amount of trash to be collected, expand waste disposal options, etc.

In its 4<sup>th</sup> plan (1992-1996), the BMA began to introduce the concept of promoting household waste reduction, reuse and recycling. Then starting in the 5<sup>th</sup> plan (1997-2001), more extensive recycling campaigns were planned including projects to collect recyclables on designated days, build a central recycling center in Bangkok, promote segregation of hazardous waste, etc. The 6<sup>th</sup> plan (2002-2006) had proposals to set up a 1,000 tons-a-day fertilizer production out of compost, to place recycling bins throughout public areas, etc. (ibid). The current 7<sup>th</sup> plan (2007-2012) has plans to promote the 3R project and to distribute bio-degradable bags for sorting of food waste that would feed fertilizer plants, etc. (BMA, Environmental Department, 2007).

Despite all these policy plans, in reality, they have not been matched by policy implementation. The haphazardness or absence of implementation of many of these initiatives (e.g., the distribution of colored bins and biodegradable trash bags, the central recycling center, the scheduled pick up of wet, dry and hazardous waste, the appropriate equipment like trash trucks that can handle sorted waste, etc.) and the little amount of budget allocated for public relations campaigns to raise public awareness – less than one percent of BMA’s total waste management cost (Panate Manomaivibool, 2005) -- simply reflect the lack of commitment that policymakers at the BMA have and the low importance they place on source separation when compared to other of its core functions, namely waste collection, transportation, and disposal. As pointed out in research by Panate Manomaivibool (2005) and Chula Unisearch (2004), one of the reasons that source separation is still not practiced much at the household level is the non-continuation and thus ineffectiveness of BMA’s policies and campaigns, resulting in the public still lacking awareness on the issue, and/or lacking confidence in the BMA’s long-term commitment on waste segregation and recycling initiatives.

### ***2.5.2 Factor: Conflict of Interest by the Collection Department or its Personnel***

Since the BMA’s collection crew is lowly paid, they have to engage in sorting of solid waste en route to the waste transit sites (Panate Manomaivibool, 2005). Therefore, source separation at the household level would, no doubt, negatively

impact their ability to earn extra income when households leave only unrecyclable waste for them to collect. Some research found that, when this happens, trash collection workers might be reluctant to collect waste on schedule, leading to backlash from household recycling efforts (ibid). Fuji (2008) also found that the public collection sector is the toughest stakeholder in building a source separation system. That is because, not only that the collection crew has vested interest in waste picking, but that officials in charge of managing the collection of solid waste also get kickbacks from these trash collectors as well. Efforts to separate recyclables at the household level would threaten the way things are currently operated. In fact, conflict resulted in a life loss in the 1990s when a senior officer of the waste management's planning section was murdered (ibid). It is clear that such issues of vested interest need to be addressed.

### **2.5.3 Factor: Regulations**

While campaigns to educate the public are absolutely essential in raising people's awareness and equipping them with knowledge on sorting methods, the need for regulations also cannot be underestimated. Countries or cities where household waste segregation and recycling is more widely practiced are among those that have regulations in place. In Belgium, unsorted trash is not collected and is stamped instead with a sticker informing the owner to remove recyclable content (Matabang, G., June – October 2007). Switzerland regulates waste collection fee to be tied to the amount of waste being disposed of as households are required to purchase stickers (each costs about 1 euro) to be placed on rubbish bags otherwise rubbish will not be collected (Recycling around the World, 2005). In the U.K., as part of the European Landfill Directive, tougher recycling laws have come into force in the 2007 requiring all non-hazardous waste to be sorted by type and recycled where possible to minimize the amount of rubbish heading for landfill (Druce, 2007). In North Carolina, U.S.A., it is now against the state law to throw plastic bottles in the trash (Charbonneau, 2009). Many other states or municipalities in the U.S. that have experienced reductions in recyclable waste also have regulations in place. For example, the container-deposit legislation or "bottle bills" which is place in certain states to require deposit on beverage containers at the point of sale is estimated to have

reduced total litter by 30-65% (Bottle Bills Prevent Litter, 2010); or the regulation that allows over 7,000 U.S. municipalities to charge trash fee per unit of waste in order to discourage waste generation is estimated to have decreased about 17% in weight of residential municipal solid waste (Skumatz & Freeman, 2006).

Countries or cities in Asia that are more successful in terms of recycling also have certain regulations in place as seen in Japan, South Korea, and Taiwan (Terazono et al., 2005); or even Los Banos in the Philippines (Atienza, 2005). Increasingly, more countries are now starting to be aware of the importance of legislations. India (ibid) and Hong Kong (Ho, 2009), for example, have recently introduced laws that discourage the use of plastic bags. Where no regulations exist, household waste segregation and recycling is not practiced as much, as evident in countries like Indonesia, the Philippines, Malaysia, and Thailand (Terazono et al., 2005).

Here in Thailand, local governments have the mandate to issue legislations regarding waste segregation and recycling according to the Public Health Act of 1992, Section 20(3) (Chula Unisearch, 2004). However, in Bangkok, as well as in other parts of the country, no such laws have been issued by any local authority. In a 2010's seminar held by the BMA on waste management, the need for recycling laws was repeatedly stressed by numerous experts in the field (BMA, Environmental Department, 2010b).

The existence of rules and regulations, however, has to be matched by the will to enforce them for the law to be meaningful. For example, penal code already exists in Thailand's various legislations punishing polluters, including the Public Health Act, the Public Cleansing and Orderliness Act of 1992, the Enhancement and Conservation of National Environmental Quality Act 1992, etc. However, these laws are usually violated due to lack of enforcement by the authority (Chula Unisearch, 2004).

## **2.6 Summary**

The Literature Review section has pointed out that gated communities are good candidates for recycling efforts, due to their size, availability of points of contact, and the potential for households to pool together their recycling efforts within the communities. However, at the moment, not many of them are engaged actively and collectively in source separation, bar a few that have been contacted by TIPMSE. It would be beneficial for policymakers to use these TIPMSE's gated communities as case studies in an attempt to find out what works, what does not, and why, with regards to waste segregation and recycling in gated communities. And since so far, there has been no research done that focuses specifically on factors affecting such an outcome, it is this thesis's aim to fill in the knowledge gap in order to inform Bangkok's waste managers, TIPMSE, or other interested organizations in their future policy and implementation on source separation and recycling in gated communities.

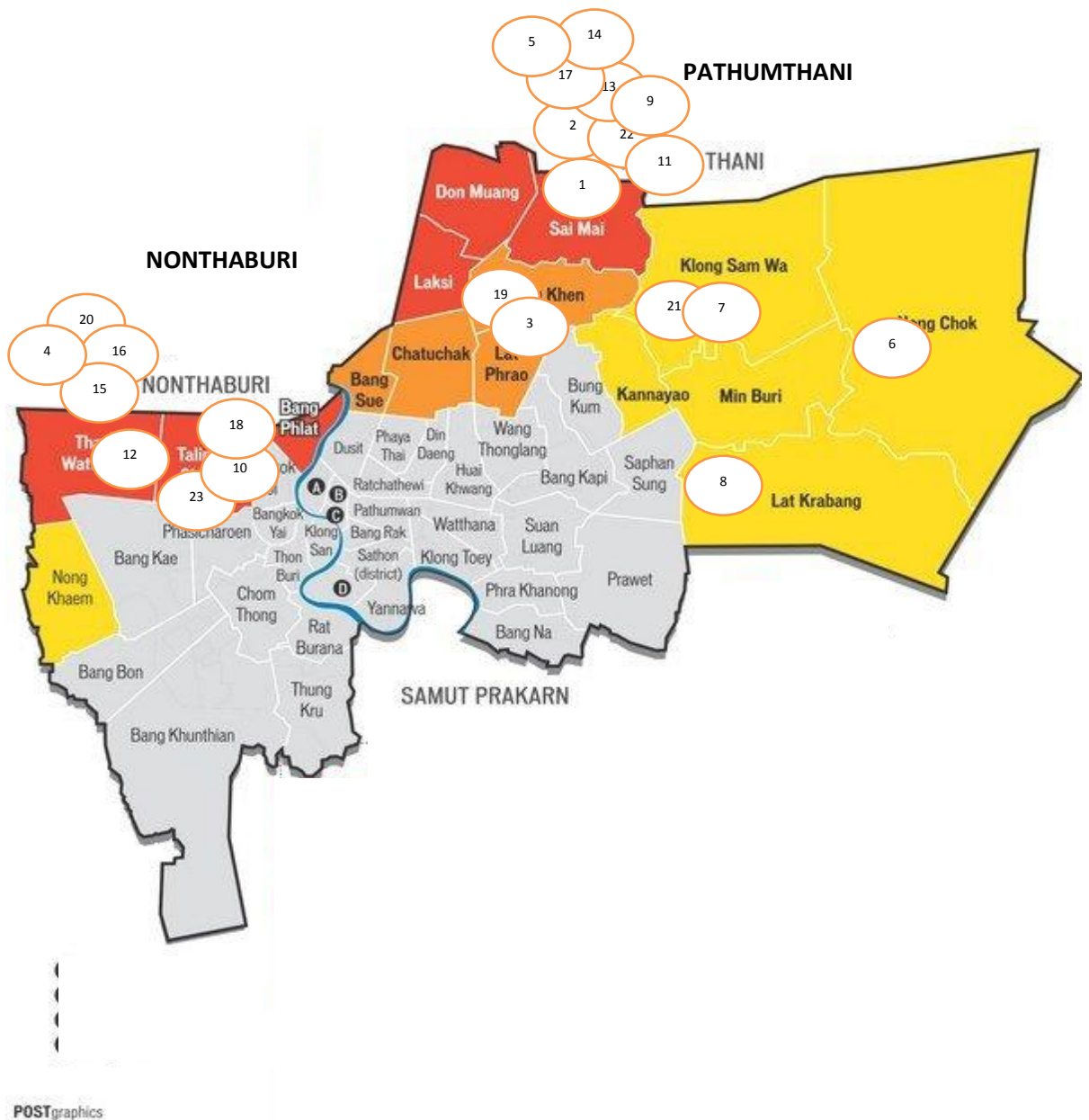
# **CHAPTER III**

## **GROUPING COMMUNITIES AND SELECTING CASE STUDIES**

### **3.1 Introduction**

The purpose of this chapter is twofold. First, in Section 3.2, all 23 gated communities used in the research are divided into groups, based on the outcome of their recycling performance (i.e., the participation rate of each community). Second, in Section 3.3, two best- and two worst-performing gated communities are selected to be four case studies for used later in Chapters 4 and 5. For a high-level map of locations of these 23 communities, see Figure 3.1 as follows.

Figure 3.1: Map of Locations of the 23 Gated Communities



*Note: A high-level map of locations of the 23 gated communities in this research. The names of these communities are listed in Table 3.1 of the following section.*

### 3.2 Grouping Gated Communities Based on Recycling Performance

In order to identify the best- and the worst-performing gated communities for use as the 4 case studies, recycling performance of each of the 23 gated communities were determined, by using the participation rate of households that are currently recycling in each community as a proxy (refer to the Research Method section of Chapter 1 for detail). A graph comparing recycling performance among all the gated communities is depicted in Graph 3.1 below. Based on the graph, the gated communities can be seen to be divided into 3 groups according to their recycling performance:

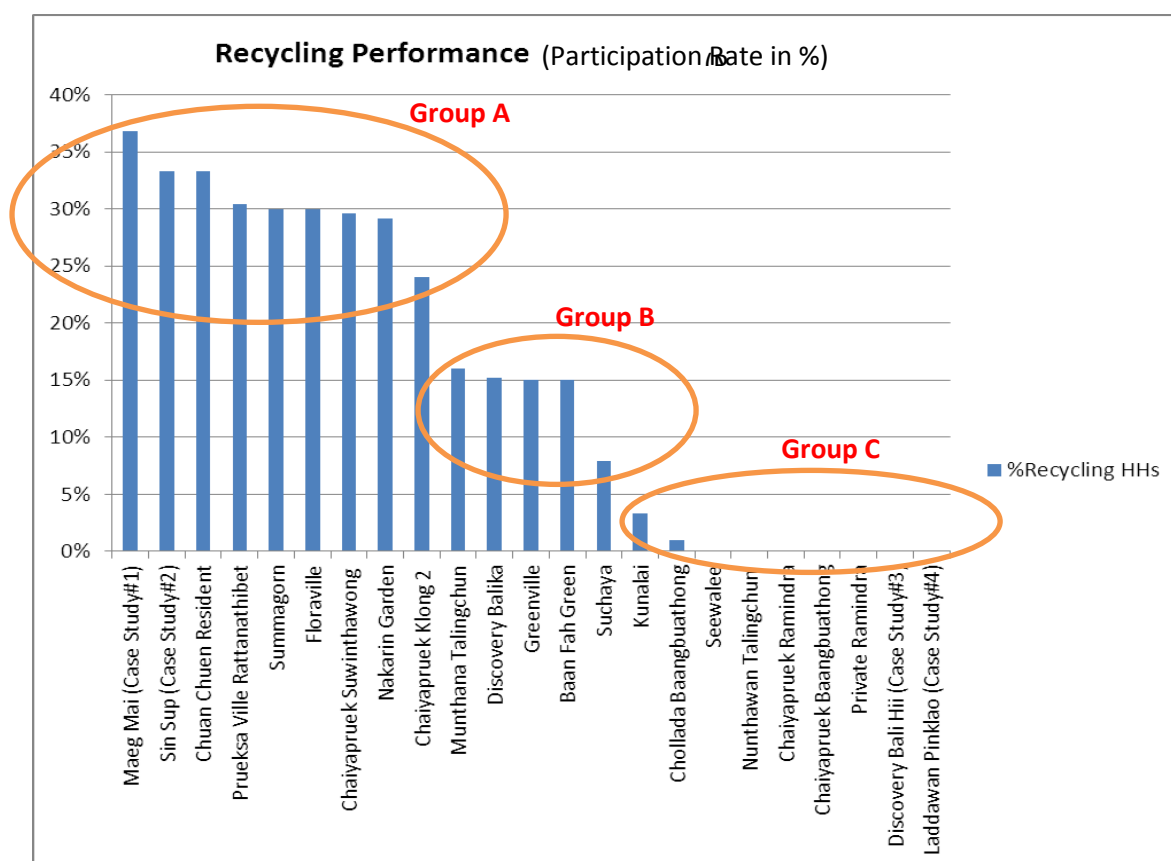
**Group A** -- contains Maeg Mai, Sin Sup, Chuan Chuen Resident, Prueksaville (Rattanathibet), Summagorn, Floraville, Chaiyapruek (Suwinthawong), Nakin Garden, and Chaiyapruek (Rangsit Klong 2).

**Group B** – contains Munthana (Talingchun), Discovery Balika, Greenville, Baan Fah Green, and Suchaya.

**Group C** – contains Kunalai, Chollada (Baangbuathong), Seewalee , Nunthawan (Talingchun), Chaiyapruek (Ramindra), Chaiyapruek (Baangbuathong), Private Ranindra, Discovery Bali Hii, and Laddawan (Pinklao).



Graph 3.1: Recycling Performance in Gated Communities



Information regarding the numbers of total and recycling households obtained from phone interviews – with one key informant per community -- is shown in Table 3.1 below, with the resulting participation rate and the grouping assignment listed in the last two columns.

Table 3.1 Recycling Performance and Grouping Assignment

No.	Gated Communities	Key Informant	Started	# Recycling Households <sup>6</sup>	# Total Households	%Participati on Rate	Group
1	Maeg Mai (case study #1)	(Multiple)	2008	70	190	37%	A
2	Sin Sup (Case study #2)	(Multiple)	2009	300	900	33%	A
3	Chuan Chuen Resident	Admin manager & resident	2008	30	90	33%	A
4	Prueksaville Rattana Thibet	Assistant Admin manager	2009	70	230	30%	A

No.	Gated Communities	Key Informant	Started	# Recycling Households <sup>6</sup>	# Total Households	%Participati on Rate <sup>7</sup>	Group
5	Summagorn	Admin manager & resident	2010	60	200	30%	A
6	Floraville	Admin manager & resident	2009	240	1,600	30%	A
7	Chaiyapruet Suwinthawong	Admin manager	2008	80	270	30%	A
8	Nakarin Garden	Admin manager	2009	70	240	29%	A
9	Chaiyapruet Klong 2	Admin manager, resident & committee	2009	60	250	24%	A
10	Munthana Talingchun	Current & ex admin managers & residents	2009	40	250	16%	B
11	Discovery Balika	Resident & ex-Admin manager	2009	35	230	15%	B
12	Greenville	Resident & committee	2009	60	400	15%	B
13	Baan Fah Green	Committee member	2009	60	400	15%	B
14	Suchaya	Resident & committee	2008	15	190	8%	B
15	Kunalai	Admin manager & resident	2008	10	300	3%	C
16	Chollada Bangbuathong	Admin manager	2009			0% <sup>8</sup>	C
17	Seewalee	Admin manager	2009			0%	C
18	Nunthawan Talingchun	Resident & ex-Admin manager	2008			0%	C
19	Chaiyapruet Ramindra	Admin manager	2009			0%	C
20	Chaiyapruet Baangbuathong	Resident & ex-committee member	2009			0%	C
21	Private Ramindra	Resident & ex-committee member	N/A			0%	C
22	Discovery Bali Hii (case study #3)	(Multiple)	2008			0%	C
23	Laddawan Pinklao (case study #4)	(Multiple)	2010			0%	C

Note:

<sup>6</sup> This represents the number of participating households. Their frequency of recycling usually ranges from once a week to once every three weeks.

<sup>7</sup> I.e., Recycling performance -- in the form of the % of households participating in recycling in a community.

<sup>8</sup> The 0% recycling household means recycling program has been terminated in the community.

### 3.3 Selecting Case Studies

Based on the grouping assigned to each gated community as seen in Table 3.1 above, two best- and two worst-performing gated communities are selected as case studies for use in the analysis section that follows. The two best-performing gated communities are *Maeg Mai* and *Sin Sup* from Group A. Both demonstrate a significant proportion of households participating in recycling in the gated communities, together with expansion of their recycling efforts into other relevant areas -- sorting non-value items such as hazardous waste and plastic bags, making liquid EM from organic waste, and networking with other communities to promote recycling – some things that are not carried out in the rest of communities in this research. In Chapter 4, the thesis would determine factors that bring about the success of recycling outcome of these two case studies.

The two worst-performing gated communities chosen at random out of Group C for the other two case studies are *Discovery Bali Hii* and *Laddawan (Pinklao)*. Both are gated communities that have essentially discontinued their recycling effort. Based on these two case studies, the thesis will analyze what significant challenges are that these two communities faced in Chapter 5.

## CHAPTER IV

### CASE STUDIES OF SUCCESSFUL COMMUNITIES

#### 4.1 Introduction

This chapter will determine the most significant factors that drive the success of recycling in the two best-performing gated communities selected as case studies. As such, the case studies of moo baan Maeg Mai and moo baan Sin Sup will be explored here.

The following sections will start with the analysis of Maeg Mai in Section 4.2. The thesis will give an overview of the community. Then it will undertake an analysis of each of the three stakeholders (i.e., the gated community, the private recycling agent, and the local authority) in order to determine most important factors relating to each of them that drive the outcome of recycling in this case study. Then it will provide a summary of the case study. After that, by following the same structure as that of the 1<sup>st</sup> case study, the 2<sup>nd</sup> case study – Sin Sup -- will be analyzed in Section 4.3. Lastly, in Section 4.4, a conclusion will be made about what drive the relative success of two gated communities, thus answering the first research question, namely:

*What are the most essential factors that lead to successful recycling among the most successful gated communities?*

## 4.2 Case Study 1: Maeg Mai

Photograph 4.1: Inside the Maeg Mai Community



*Note: Photograph taken by the author in January 2012.*

### 4.2.1 Overview

Maeg Mai is a gated community located in the northern part of Bangkok in Sai Mai district. The community is still well maintained, considering it has been established about 15 years ago. It is composed of 209 households, 190 of which are with occupants, with land sizes ranging from 100 –180 square wa<sup>9</sup>. Like a typical gated community in Bangkok, most people work outside of home. However, since it has been established for quite some time now, there are 2-3 generations within households. There are clubs for residents to join with activities such as walking and yoga, although most members are the elderly who stay at home. The community was approached by TIPMSE to join in its recycling program in 2008, but did not enroll in the program until 2009 when the then newly elected committee chair took over the matter out of his own interest in recycling. Later that year, Maeg Mai went on to win a second prize award in TIPMSE's recycling contest. While the first-prized community (Discovery Balika in Group C) has dropped its activity at present, Maeg

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<sup>9</sup> 1 square wa equals 4 square meters.

Mai's is still ongoing. About 60 households joined the recycling program when it started. Since then membership grew to 111 households, 70 of which participate on a regular basis (although activity has dropped since the flood at the end of 2011). Each member was provided with 2 medium-size plastic bins with lids from TIPMSE – a blue one for paper, and a yellow one for assorted bottles. Small stickers were issued to be posted in front of members' homes for identification. They were provided training by TIPMSE's staff as to how to sort waste in detail to increase its sale value when selling to recycling agents. Interested residents could also participate in other educational campaigns and activities about recycling held three times so far by TIPMSE at the community.

Once a week, participating residents at Maeg Mai would bring sorted recyclables out onto the curb in front of their homes by placing them in the two bins given by TIPMSE for paper and mixed bottles (Photograph 4.2). Some would even sort bottles into different types (e.g., PET bottles, aluminum cans, metal cans, glass) and leave them in separate plastic bags next to the bins. In order to avoid recyclables being collected by the local government's trash collectors who come to collect regular trash in the morning, residents would bring these bins out in the afternoon. These recyclables would be collected by community's field workers whose main job is caring for the public area (e.g., street sweeping, gardening). The workers would then sort the content of the bins into finer detail at a small temporary shelter area located at the community entrance (Photograph 4.4) before calling in a recycling agent nearby to weigh and buy the sorted recyclables. The proceeds would be shared about half and half between among the field workers and the residents' central fund.

Photograph 4.2: Recyclables in TIPMSE's Bins Awaiting Collection at Maeg Mai



*Note: Bins brought out on curbside on a Sunday afternoon awaiting the 1pm collection time. Photograph taken in January 2012.*

So far, Maeg Mai has made a sustained effort in recycling by enlisting a higher proportion of households that recycle compared to most of its peers, as well as expanding its effort into other relevant areas – sorting hazardous waste, recycling emptied milk cartons, making fertilizer out of branches and leaves, and networking with other communities to expand its recycling efforts. The case study of Maeg Mai allows us to determine what has led this community towards a more successful outcome compared to the rest.

Based on the thesis's conceptual framework, there are three stakeholders whose roles influence the outcome of household recycling in gated communities. Sections 4.2.2 – 4.2.4 analyzes each of these stakeholders in turn, by discussing findings on what drive the relative success so far of the recycling program at Maeg Mai. (For a summary of findings from case studies in comparison to other gated communities, please see Table 6.1 in Chapter 6.)

#### 4.2.2 Stakeholder -- The Gated Community (Maeg Mai)

##### a. Social Capital

- *Actively Pro-Recycling Leader*

There is an active leader at Maeg Mai who has been spearheading the recycling effort there. He used to chair the community's committee for one term during 2008-2010. His personal desire to contribute to the community he lives in together with his awareness on environmental and waste issues has led him to initiate several environmental programs besides recycling, such as making fertilizers from discarded branches and leaves from trees in common areas of the community, and arranging for the BMA's scheduled pickup at his community for hazardous waste. At the moment, he is also starting more initiatives albeit at the conceptual stages, including biogas, recycling of plastic bags, and finding ways to make use of food waste. Although his term as the committee chairman ended in 2010, he has kept up his contribution to his community until now, and is committed to keeping on working to improve the environment and livelihood there. Moreover, his past appointment as the chair of the previous committee gave him the opportunity to build relationship with the community's administrative staff whose collaboration in the recycling program is vital to the success of the program. His activeness in reaching out to residents also resulted in the community forming an informal group of volunteers who promote recycling. His continued leadership and activism at Maeg Mai is one of the unique features that lead the community to a more successful outcome in recycling among its peer. This is confirmed by information gathered from key informants including the administrative office manager and TIPMSE's project manager who pointed him out as the most important driver of the recycling effort at this community.

“[The active leader] is the one who heads the recycling effort here. The current committee agrees [with the project] in general, but really he is the main driver.....Yes, the star-point scheme [where residents accumulate stars based on the amount they recycle, in order to receive freebies] is also his idea.....He now wants to expand into raising worms to make organic fertilizers.....It was his idea to set up a workers' cooperative for us staff. Proceeds from recycling are shared – about half goes to our coop, the other



half goes back to the community funds for the residents.”, (CS\_MM3, Interview, 9 January 2012)

“[The active leader] at Maeg Mai is very much into recycling. He also led his moo baan in expanding into making organic fertilizers from discarded branches and leaves in the community. They have used the proceeds from recycling to buy a branch cutting machine to help with the fertilizer making process. The fertilizers they make help save money that the moo baan needs to pay for buying fertilizers. Plus they no longer have to pay so much for the expense of hauling away discarded branches. Basically, recycling is paying off for Maeg Mai”, (TIP1, Interview, 10 June 2011)

▪ *Pro-Recycling Volunteer Group*

At Maeg Mai, not only is there an active local leader who is for recycling, there is also a loose group of roughly 10 residents who regularly supports the work initiated by this leader on a voluntary basis. The voluntary group is formed with a theme of improving the environment of the community. Mostly women who are middle-aged or older, their activities range from getting together to make liquid fertilizer from branches and leaves, to helping with arranging activities promoting recycling in the community such as getting experts to teach residents how to make handicrafts from recycling materials and how to sort trash into fine detail. These volunteers are residents who are themselves aware of the waste problem. They are touched by the dedication of the pro-active leader at Maeg Mai and so they formed an informal group to support his work and use the group as a mean to socialize among like-minded residents at the same time.

Such a group of residents is essential in recycling efforts. The group provides moral support and encouragement for the local leader who spearheads the recycling program. It also acts as a network of residents who promote recycling through word of mouth. The importance of the volunteer group was stressed by the active leader.

“If Maeg Mai has to rely on its committee to head the recycling project, it’ll never succeed. Committee changes when term ends. And even if the new team continues to approve the project, they might not actively support it. An active volunteer group is needed to ensure the continuity of the project. The support from this group of people also helps me withstand criticism [from certain people who disagree with the project without good reasons]. It’s much better than working alone”, (CS\_MM1, interview 9 January 2012).

“We would talk among one another and keep one another posted about recycling. We also help make liquid fertilizers. Usually we would get together and join any recycling campaigns or whenever the moo baan organizes for somebody to come for training. So far, we’ve got experts coming to teach us how to sort trash into detail, and how to make hand-made products out of soda cans”, (CS\_MM5, Interview, 9 January 2012).

“I help [the active leader] whenever I can. He wants to start a milk carton project. I agree a lot with that as I see my daughter’s school generates so much of such waste every day. So now I bring home about 200 or so of empty milk cartons each day to accumulate at the moo baan. They would be donated to make green roofs. First I actually washed them one by one, but it was too much to do. Now I just leave them as they are. [The active leader] has managed to get [TIMPSE] to help find a recycling shop to take those dirty cartons. ....I feel so good I can contribute. I teach my daughter every day about the value of waste”, (CS\_MM2, Interview, 9 January 2012).

- *Administrative and Field Staff*

At Maeg Mai, as well as at most other communities where this research was conducted, recyclables are picked up and handled by the community’s field staff (mostly street sweepers or gardeners) before the waste leaves the community. Therefore the collaboration and efficiency of the staff in handling the recyclables is part and parcel to the success of the project. The

administrative office sets aside 2 field workers at a time, to handle the tasks required to run the recycling project. Besides facilitating recyclables collection, the administrative office also has another important job of promoting recycling news to residents. At Maeg Mai, newsletters are issued whenever there are upcoming events. There is also a web blog for residents to get updates on recycling activities. As it turns out, Maeg Mai has well-functioning administrative and field workers who facilitate the recycling effort, based on information gathered from those who recycle<sup>10</sup>.

The efficiency of the administrative office could also be observed when the author was shown detailed records of recyclables collected from each home from the start of the project, even though the current administrative office manager was hired after the recycling program was launched. The manager himself also expressed confidence in his staff's ability to handle both the main tasks and recycling. The fact that residents here sort trash into fine detail also helps make these tasks more manageable.

“No problem. Everyone knows their duty. Residents would bring out trash once a week on time. Our workers would go around collecting it and putting it into separate large bins at the central sheltered area..... It doesn't hurt our regular job”, (CS\_MM3, Interview, 9 January 2012).

“Yes, in every collection, we would record roughly how much of recyclables each resident bring out [in order to accumulate points]”, (CS\_MM4, Interview, 9 January 2012).

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<sup>10</sup> Based on interviews with CS\_MM1, CS\_MM2, and CS\_MM5, CS\_MM6 in January 2012.

Photograph 4.3: Field Workers at Maeg Mai During Collection Time



*Note: A worker jotting down the amount of recyclables collected from each home. Photograph taken in January 2012 by the author.*

Ever since the flood last year, however, when Maeg Mai was hit hard, the administrative and field workers have been very busy. They still keep running the recycling system, but the manager admitted that things have been hectic and that these workers have to drop some other tasks they perform as a sideline like household repair works on call by residents. It is possible that gains from recycling help these workers keep up with the recycling effort. But it is also possible that they might not be able to do so when the time comes that they are truly busy from their main tasks.

- *Pro-Recycling Committee*

Information gathered from key informants reveals that the approval of the resident committee on recycling activities is vital in any project that takes place at the gated community, including the recycling project. That is because projects, including recycling, unavoidably involve the use of the community's resource (e.g., administrative staff, budgets for public relations and equipment, the use of public area during events, etc.), thus requiring approval from the committee.

“The continuity of the project depends on whether the incumbent committee would be interested in recycling or not. They need to be in on it because they’ll need to give their approval to allow the administrative office’s workers to work on recyclables collection and to run the PR campaign, etc.”, (CS\_MM3, Interview, 14 January 2012).

“In the long run, whether Maeg Mai would be able to sustain its recycling effort or not depends ultimately on its committee. Even though there are volunteer residents and active people like me who are hands on with the project, at the end of the day, if the committee really objects to it and not many other residents advocate it, then the project will flop. And there’s a high chance for that because the majority of residents in gated communities are, by nature, not active residents.”, (CS\_MM1, Interview, 14 January 2012).

- *Networks*

One of the unique things that the active leader at Maeg Mai has done is networking and reaching out to people outside the community to acquire necessary resources for his community’s recycling project. Ever since he took the post, he sought help from a locally elected representative of the Bangkok parliament. By making use of the power of his residents as electorate, he asked the local parliament representative to support his community by supplying large recycling bins for use in central sorting. The representative then provided the community with 15 of these large bins, plus some more for hazardous waste. These bins are used as the temporary storage for sorted recyclables after they are collected from home to home, before the recycling store sends a truck to pick them up. As it became clear during interviews with other gated communities, a temporary sheltered storage is an important element that sustains the recycling effort. In addition, through his contact with the local representative, he also reached out to the District Director in his area and encouraged the director to promote recycling of emptied milk cartons among local schools. The bulk of milk cartons pooled together from these schools

which, otherwise, has no market value, makes it a large enough quantity to arrange for a recycler to take them away for recycling.

His connection with TIPMSE also allows him to get connected with active leaders in other communities. This offers him a network of like-minded people to brain storm ideas and share experience with, and serves as a source of moral support whenever he runs into obstacle within his community.

“I know [the active leader at Sin Sup]. She’s so energetic and knows so many people. It’s so great talking to people like her and other community leaders. We provide support to one another because our experience is similar, both as community leaders and also as people who want to make recycling work in our communities”, (CS\_MM1, Interview, 9 January 2012)

“Yes, I know [the active leader]. In fact he and I and [a leader of a recycling cooperative helped set up by TIMPSE] always get together often now. We are trying to come up with a project to bring recyclable products made by poorer communities we work with into the market”, said one pro-recycling person who happens to be a resident at Discovery Bali Hii in the third case study. (CS\_BH2, Interview, 1 February 2012).

#### **b. Temporary Storage (Factor: Convenience)**

At Maeg Mai, once the community’s staff collects all recyclables from in front of residents’ homes, they would bring them to accumulate in a sheltered area with large container baskets and bins (see Photograph 4.4) where collected recyclables can be sorted further, kept tidy and relatively dry, and can be accumulated until the quantity is big enough before a recycling agent would be called in to buy the trash, which is usually after 3 weeks of collection. During the rainy season, the shed would be further covered with big canvas for extra protection. The many containers at the shed enable the administrative workers to conveniently store sorted recyclables into separate bins according to their types, thus facilitating their work as well as increasing

the value of recyclables upon selling to the recycling agent. Upon doing further research in other gated communities, the author found that not all gated communities possess such a feature that is vital and was cited by many key informants as important in terms of the practicality of any recycling project. Without a temporary storage, recyclables will have to be sold on the day of collection. The result is that private recyclers might not want to come in because the amount may not be large enough to be worth a trip. Therefore the existence of such storage can be identified as one of the important success factors of a community.

“One or two of my workers would spend about half a day at the storage shed on the day after the collection of recyclables from residents’ homes. Most recyclables that we pick up are already sorted from homes, so we would just dump them into different bins according to their types. It’s no big deal because the bins help make it convenient for us”, (CS\_MM3, Interview, 11 January 2012).

Photograph 4.4: The Temporary Sheltered Storage Area at Maeg Mai



*Note: The shelter is currently inundated due to flood.*

*Photograph taken in January 2012 by the author.*

**c. Other Factors**

Three other factors identified in the Literature Review are civic mindset, perception on recycling, and children. With regards to civic mindset on waste issue, besides the active leader and the volunteer resident mentioned above who brings back emptied milk cartons from school every day, other residents also showed their concern for the environment due to the waste issue. All of them feel that everyone is partly responsible for his or her own waste. Some also feel that the trend about recycling is catching on and that more and more people are aware of the waste issue, especially since the flood of 2011. Regarding Perception on Recycling, interviews showed no signs of social stigma against recycling as perceived by these residents. They seem to associate recycling with a positive thing to do to help the environment. This is true even with the residents interviewed who did not join the recycling program. Lastly, regarding children, when asked whether children in their households have any influence on their recycling behavior, those who have children mentioned that they, as parents, are ones who influence their children on recycling, not the other way around.

#### 4.2.3 Stakeholder -- The Private Recycling Agent

There are at least 3 private recycling shops within the proximity of 1 kilometer from Maeg Mai. One of them is contacted by the community to regularly come to buy recyclables. For privacy reason, no other recyclers are allowed in. Residents at Maeg Mai do not have to deal directly with the recycling agent. Only the administrative workers do. When recyclables are accumulated into a large enough amount, the administrative office would contact the recycling agent of choice to come in to the shed to weigh and buy recyclables. The sale of recyclables to the agent enables residents at Maeg Mai to gain income towards the central community fund which is then used to purchase equipment for their community such as machine to cut branches for making fertilizers. It also provides workers of the administrative staff extra income from facilitating the recycling system. An interview with the recycling agent



used by Maeg Mai reveals that his shop almost never goes to pick up recyclables from gated communities due to the fact that residents from these communities usually do not sort waste in detail (e.g., separate into plastic, paper, glass, and/or metal, etc.). He prefers walk-in customers who come in with finely sorted waste. He is fine with Maeg Mai since he can collect recyclables in bulk and the waste is sorted well.

**a. Availability**

As stated above, there are at least 3 private recycling shops close by to Maeg Mai. The one that Maeg Mai currently deals with is located within a 5-minute drive. This makes the recycling project at the community possible.

**b. Reliability**

The current shop was chosen because it offers a better service to come pick up recyclables on premise and on time, and also offers a better price, as confirmed by the administrative office manager.

Note that recently since after the flood, the private recycler failed to show up on time on some occasions so trash is left accumulated at the shed, making it difficult for administrative workers to sort recyclables once collected. They therefore had to halt the collection of recyclables for a short period of time. When that happened, some residents hesitated to sort and bring out recyclables because they were unsure if collection would take place or not. The manager is expecting things to get back to normal soon after the flood consequence subsides.

#### 4.2.4 Stakeholder -- The Local Authority

The BMA district where Maeg Mai is located is called Sai Mai district. The district currently collects at least 6-8 tons of waste per day from both businesses and communities in the area. Interviews with members of Maeg Mai did not find the local authority to play any particular role in supporting the effort of household recycling, other than the informal sorting by the district's trash collection crew. The only contact

that the community has with the local authority in term of waste is when the local trash collectors come to pick up regular trash twice a week in front of residents' homes where trash is put in large bins on the curbs. They pay waste collection fees as part of their annual community fees – typical of arrangements in gated communities.

**a. Commitment from Policymakers on Recycling**

The local authority at Sai Mai district where Maeg Mai is located promotes recycling in open communities<sup>11</sup>, but not in gated communities. Since two years ago, the Public Cleaning and Public Parks (PCPP) Unit of Sai Mai has followed a BMA directive in training open communities on source separation. It has now trained 6 of these communities with a budget of 10,000 baht for each community given to the district by the BMA. The district staff would hold meetings with leaders of these local communities once a month and training sessions would be held for people in the communities where they would be taught how to sort waste into different types in detail in order to increase its sale value. Then the district would get the communities in touch with large recycling agents who would deal directly in buying those recyclables. According to the head of the PCPP unit, the main goal of this campaign is to reduce the amount of trash that needs collection once people learn to sort it for sale. His experience in working with open communities also suggests that involvement of community leaders is the main drivers of success in any recycling project that involves communities. So far, he only has been able to target open communities, and not gated ones due to lack of interest and time from the latter type. He also feels that gated communities are not as interested in monetary gains from recycling as open communities are. In terms of the relation between his district and Maeg Mai, according to the administrative office manager at Maeg Mai, the district actually attended one of the recycling events held at Maeg Mai in order to learn about how the community runs a recycling project.

**b. Conflict of Interest**

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<sup>11</sup> Crowded, non-gated communities on small public streets and thoroughfares

The active leader and the administrative office manager acknowledged that the local government's trash collectors earn extra income from picking out recyclables from trash they collect. When these collectors see recyclables sorted by households into the yellow and blue bins and placed in front of homes for others to collect, they might feel bad. However, so far, this has not hurt the district workers' trash collection routine at Maeg Mai. Recognizing that these workers' income is tied to the amount of recyclables they collect, the community is quick to donate rice to these district workers as a good gesture. This might have ensured continued on-time pickup for regular trash.

In order to confirm the point above about trash workers getting income from waste picking, a supervisor of trash trucks at Sai Mai district was asked whether a successful household source separation campaign would result in trash collectors having less incentive to collect trash. He acknowledged its possibility although still expressing confidence that it would not impact their trash collection substantially since collectors have a strict mandate to collect all trash as their main job function; and importantly, there will always be trash left to sort.

“It's possible that [extensive source separation] will impact the welfare of our trash collectors. But they will have to follow the call of their duty which is to complete trash collection according to specific work plans. In any case, I'm pretty sure they'll still have plenty of trash left to sort”, (DT3, Interview, 7 February 2012).

**c. Regulations**

There is no regulations concerning recycling in the Sai Mai District or in Bangkok in general. Trash is always collected unsorted. Collection fee is minimal. No regulation is issued to promote or entice the public to recycle. When asked about the possibility of issuing a law enforcing recycling, the head of the Public Cleaning and Public Parks (PCPP) Unit at the Sai Mai district stated that such a law can be passed by the Bangkok parliament (as

opposed to the district parliament), but held the reservation that a law would not be an effective tool in encouraging the public to recycle. In his opinion, public awareness should come first before the law. Without self-awareness on the need for source separation, such kind of law would just result in many complaints by the public to their local representatives, who would then request the PCPP unit to revert to trash collection as usual.

“The mere thought of such a law gives me headache. People will just call up their local reps to complain about [unsorted] waste being left uncollected by us. It’ll only take 4-5 of these local reps to make phone calls to us before we are compelled to go back and do things the current way”, (DT3, Interview, 7 February 2012).

**d. Workload**

According to the head of the PCPP Unit at Sai Mai District, the amount of overall trash to be collected in his district each day is so massive, compared to the size of his workforce, that his department constantly has a hard time completing the collection job.

“The amount of people in the district increases every day, and so does trash. But the size of our workforce has stayed the same for almost 10 years now..... The resource and manpower allocated for the job is so tight that there’s no room for error..... Workers take leave, and take Sunday off, but trash never stops being generated on Sunday. So in reality, we always fall behind our work at the start of the week on Monday and Tuesday. By the time we’re done with catching up with the amount of work, it’s Sunday again”, (DT3, Interview, 7 February 2012).

The huge amount of workload results in the district’s constant focus on its only main job – catching up with trash collection, at the expense of other initiatives. The head of the unit acknowledged that in the past, the BMA had

policies to have scheduled pickup of different types of trash. However, implementation never took place.

“It’s one thing to have policies for this and that [meaning recycling policies as directed by the Environmental Department], but it’s very difficult to implement in the field when we have such limitation [of not having enough workers compared to the huge amount of trash]”, (DT3, Interview, 7 February 2012).

#### 4.2.5 Summary of the Case Study of Maeg Mai

The following will summarize findings from Maeg Mai into 2 sections – potential success factors and challenges that drive the outcome of recycling at Maeg Mai.

##### **Potential Success Factors:**

The potential success factors relating to the gated community are social capital, temporary sheltered storage, civic mindset and perceived image on recycling. Maeg Mai is shown to possess social capital in the aspects of strong leadership, committee, administrative and field staff, volunteer, and networks. Such social capital ensures necessary support for recycling efforts from all types of members of the community. Convenience of having a temporary sheltered storage for collected recycles at Maeg Mai helps facilitate the project. Interviewees also show to have the civic mindset that the waste issue is everyone’s issue. They also have positive image about recycling. Children, on the other hand, does not seem to be a success factor since no interviewees indicated children as a reason for them to recycle waste, unlike what Panate Manomaivibool (2005) pointed out in his research as discussed earlier in the Literature Review.

In terms of the private recycler, most residents who recycle at Maeg Mai choose to join the collective recycling project in which the community sells recyclables collected from members to a private recycler, although some still choose

to leave them to be collected together with regular trash by municipal trash collectors. Therefore the availability of private recyclers in the vicinity of the community makes it possible for Maeg Mai to engage in recycling and receive proceeds from it.

With regards to the local authority, there is no evidence from field research showing that the BMA or Sai Mai district play any supporting role for Maeg Mai's recycling campaign.

**Potential Challenges:**

Potential challenges in the case of Maeg Mai stem from the recent unreliability of the private recycler as the 2011 flood that has left many recycling shops inundated with waste even at the time of this research in January 2012.

The local authority may seem to have posed no direct challenge to the recycling effort at Maeg Mai, but possible challenges are indirect. These stem from the lack of BMA's commitment to promote recycling in gated communities or in the general public beyond open communities, the lack of regulations concerning recycling, and the lack of manpower at the district to be allocated to any recycling project as the district is so overwhelmed by the day-to-day operation of collecting overflowing trash. The issue of conflict of interest from waste-picking trash collectors, on the other hand, does not seem to be a threat to recycling at Maeg Mai.

### 4.3 Case Study 2: Sin Sup

Photograph 4.5: Inside the Sin Sup Community



*Note: A row of townhomes inside Sin Sup.*

*Photograph taken in January 2012 by the author.*

#### 4.3.1 Overview

Sin Sup is a community located in the Rangsit Klong 4 area of Pathumthani, which is a suburb to the north of Bangkok, and a part of the Bangkok Metropolitan Region (BMR). The area is home to many residential communities locating one after another along the Rangsit canal. The community is composed of about 900 two-story townhomes, with the average land sizes ranging from 17 to 24 sq. wa. Although economically in a lower stratum compared to most other single-home gated communities in this research, it is a gated community. A very large and diverse community, Sin Sup is unique in that there are about 15-20 shops inside the community that are run by residents. These shops whose businesses range from barbers, convenient stores, food vendors, etc., are located along one strip right after the entrance into the community and are mostly frequented by customers who live in the community themselves. At the time of this research, there were also food stalls – about 5 of which could be seen sporadically throughout the community -- run by residents who lost jobs due to the 2011's flood. The majority of the residents,

however, work outside of homes and so the community is relatively quiet during the weekday, most similar to any other Bangkok's gated community.

Sin Sup has joined TIPMSE's recycling program since March 2009. By collaborating with an active resident who serves on the current committee at Sin Sup, TIPMSE helped Sin Sup launch the recycling program that the active leader spearheaded by providing PR materials such as big canvas posters to be placed at public areas, as well as holding activities and training for residents. Like in other gated communities that join TIPMSE, Sin Sup residents are given stickers to be placed in front of homes in order to designate membership; and points were accumulated for each member based on the amount of recyclables each time he/she brings them out, which can be exchanged for prizes at campaign events.

Unlike at most other gated communities that join TIPMSE's program where recyclables are picked up by workers of gated communities on a regular basis before being sold to agents outside, Sin Sup has a private recycling agent who runs an informal recycling business at her home in Sin Sup. The majority of Sin Sup's residents who have recyclables they want to sell would call this in-house recycling agent to come to conduct the transaction of weighing and paying for recyclables right in front of their homes. The rest would bring recyclables out to be sold to shops outside. In addition, unlike in most other gated communities where proceeds from recyclables usually go to central community funds, Sin Sup residents collect proceeds for themselves upon sale of recyclables.

At present, there are about 300 residents who sell recyclables to the in-house recycling agent, roughly to the amount of 8,000 baht per month in total. Sin Sup has expanded its recycling effort into sorting hazardous waste and two other types of waste that recycling agents usually do not buy due to their low value, e.g., plastic bags and milk cartons. Its leader is also active in the local community in promoting household recycling. The proportion of households that participate in recycling, together with its expansion to other related area, drove the community to stand out among its peer as a more successful case.



Sections 4.3.2 – 4.3.4 below analyze the three stakeholders at Sin Sup, by discussing findings on associated factors that drive the relative success so far of the community's recycling effort. (For a summary of findings from case studies in comparison to other gated communities, please see Table 6.1 in Chapter 6.)

#### 4.3.2 Stakeholder – The Gated Community (Sin Sup)

##### a. **Social Capital**

###### ▪ *Pro-Recycling Leader*

There is one very active pro-recycling leader who has been promoting recycling at Sin Sup since 2009. Ever since this active leader was elected a committee member and started promoting recycling in the community in 2009, more households at Sin Sup have been engaging in sorting and selling of recyclables. It is due purely to her own awareness on household waste and recycling issues that drove her to invest the initial 25,000 baht of own money to get the campaign on household packaging waste recycling going, by starting a public-relation campaign for an environmental rally day in her community in which residents were encouraged to bring out recyclables for sale at the main public area of the community. There were also many fun games and activities for families to enjoy at the event, and residents could also collect points upon sale of recyclables in order to redeem prizes. The event brought in 3,000 kilos of recyclables. In promoting recycling, she has also been very creative in coming up with different event themes. For example, she held an annual merit making event where residents were encouraged to bring in emptied milk cartons instead of the usual staples. She also involved children in events she held in which kids at Sin Sup were asked to collect and bring in packaging waste in exchange for prizes. She also campaigned for recycling of plastic bags by asking residents to accumulate and bring them in, in exchange for liquid fertilizers. Then she would endeavor to find a place that would take these bags, when normally most recycling agents would not since these bags do not carry much value. (She eventually found one in Ayudhya.) She has just

now been approached by UN Women to be interviewed for its program that features women who strive to make a difference in their local communities.

“At one point, I just felt like I had to do something about the waste problem. I talked to [her husband] and he agreed to let me spend some money on promoting it here”, (CS\_SS1, Interview, 24 December 2012).

As indicated by the project manager at TIPMSE as well as many residents who were interviewed for this research, her active leadership is one of the most essential ingredients that have heightened the recycling activity in her community.

“Sin Sup is unique and so more successful than most others because it has [the active leader] who pushes for recycling activity in the community”, (TIP1, Interview, 23 August 2011).

“I think the leadership of [the pro-recycling leader] is key because she is able to reach out to residents”, (CS\_SS3, Interview, 24 December 2012).

“A lot of residents here now know about recycling, and are doing it on a regular basis. [The active leader] is the one who has been actively promoting it when she started her post on the moo baan’s committee”, (CS\_SS2, Interview, 12 January 2012).

“I got to know her during the flood when the committee asked for help with sandbags. She’s the key person who comes up with recycling campaigns. Now she would let me know whenever there’s news or any upcoming recycling event”, (CS\_SS6, Interview, 24 December 2012).

The active leader also stated her intent to continue to lead the effort even after she is no longer a committee member. This is very important in ensuring the sustainability of the project.

- *Pro-Recycling Volunteer Group*

Another potential ingredient for the success of household recycling at Sin Sup still relates to the factor on social capital – the resident volunteer group. Mostly women, these volunteers are inspired by the strong will, dedication, and leadership of the pro-recycling committee member discussed above. They are also residents who themselves see the need for recycling based on their own awareness. Here is a quote from one of them.

“I think we are mainly responsible for our own trash. It’s true that I recycle to get money. But I would still do it even if it has no cash value, just because we generate so much waste all the time.....I’m very inspired by [the recycling leader]. She’s so dedicated and so I’d like to help her do it”, (CS\_SS3, Interview, 24 December 2012).

One of these volunteers is a food vendor in the community who likes to spread information about recycling and any upcoming events to her customers. She also discourages the use of foams by reducing the price of food she sells if customers refuses to use foam boxes. Another volunteer is a primary school teacher who has formed a habit of recycling because the local school she works for has a recycling system in place. Others are people who would like to help out. They would work together on recycling matters, e.g., preparing for any recycling events, coming up with games and campaigns to promote recycling, cleaning up emptied milk cartons to be sent for recycling, etc.

What such a volunteer group brings is the support from like-minded people, and the joy of working together. Most importantly, it ensures that any efforts on recycling promotion is not put in place solely by the elected committee whose term usually lasts for no more than 2 years, thus resulting in higher probability that the campaign would continue.

- *Administrative and Field Staff*

Currently Sin Sup has no administrative and field staff of its own because common areas in the community have not yet been transferred ownership from the builder company yet. However, as far as the recycling project is concerned, such is not an issue because the private recycler who lives and works on premise assumes all the recycling work that would otherwise have to be done by the staff.

- *Pro-Recycling Committee*

The fact that the active pro-recycling leader serves on the current committee, plus her husband also serves as its current chairperson, no doubt makes the environment at Sin Sup more conducive to recycling. The buy-in from the community's committee is important as the recycling project at Sin Sup needs the committee to permit the use of public area for events and the use of speaker phones to go around the community for announcement, for example.

- *Networks*

Findings from field research revealed that one of the potential reasons that recycling works so far at Sin Sup is because the active recycling leader has built an extensive network that includes people from the government and the private sectors. This essentially helps her with supplying rare resources and unique support. For some examples regarding collaboration from the private sector, her network with a big consumer products company enables her to acquire a number of flood survival bags which she in turns gave to residents who recycle in her community, as a way to promote recycling. Her network with a manufacturer of green roof tiles enabled her to find an outlet for emptied milk cartons brought to her by residents. Her network with Bangkok Glass enables her to find a big buyer who gives attractive prices for sorted glass.

Regarding collaboration from the government sector, her network with relevant government officials provided her the ability to gain more information about recycling and to acquire resources like organic, liquid fertilizer (given as a compliment to residents who brought in recyclables), sorting bins for hazardous waste, or transportation means for sorted plastic bags going for sale in a store in another province, etc.

It is possible that the facts that she works part-time in a princess's royal project and that her husband (who also serves on the community's Committee as its Chair) is a police general could have helped her garner respect and support from the people she sought collaboration from. Still one should not dismiss that an ordinary committee person would also be able to access help from these sources if he/she is active enough in networking (as can be seen in the case of Maeg Mai).

**b. Convenience**

▪ *Anytime and on-the-Spot Collection*

As mentioned above, at Sin Sup, there is no specific collection schedule for recyclables. Rather, residents can call the in-house recycler whenever they accumulate enough trash for sale; or when the amount of trash they accumulate starts to take up too much space in their homes. The recycler would then come with her push cart to weigh, collect, and pay for the trash on the spot. This feature is unique because in most other communities whose interviews were conducted for the research, there are strict pickup schedules which may or may not be convenient for all residents. Such convenience could potentially give an extra boost to the recycling performance of this community. The number of residents selling trash to the in-house recycler compared to those selling to recycling stores nearby the community testifies to that. According to the in-house recycler, almost 300 out of nearly 900 households use her service while she estimated that 10% sell trash to recyclers outside. As the field research discovered, most residents who were interviewed stated that they use the service of this in-house agent because it is convenient.

- *Temporary Sheltered Storage*

Once the in-house agent picks up recyclables from a resident, she would bring them home where she would sort them further into finer detail. And when the trash reaches a big enough amount, she would take it out to sell to bigger recycling agents/shops outside. In this way, her home essentially acts as a temporary sheltered storage for recyclables at Sin Sup. Such storage is in fact one of the significant factors that makes recycling work in this community, compared to many other gated communities that the author interviewed where the lack of such space was often cited as one of the obstacles which make it difficult for them to sustain recycling efforts, since many private recyclers would not come to buy trash if the amount of trash is not significant enough to warrant profit after subtracting the transportation cost.

**c. Economic Status**

It should be noted that Sin Sup has by far the smallest homes among gated communities where this research was conducted. Its townhomes average 17-24 sq. wa compared to 50-70 in most other gated communities, and going up to over 600 sq. wa in some. Economic gain from selling recyclables would, therefore, be likely to act as incentive for residents here to sort waste. It is then logical that income level is potentially one of the drivers for success in recycling.

**d. Other Factors**

Concerning civic mindset on the waste issue, the active leader and residents interviewed showed strong awareness about waste problems and a personal desire to see more recycling done. That is because at Sin Sup, waste overflowing on curbsides is a chronic problem. This may have caused them to see the need to reduce waste. Many of them also expressed the view that waste is everyone's responsibility. Regarding perception on recycling, none of the interviewers showed stigma about the fact that most of them recycle for their

own gains. Lastly, regarding children, no one mentioned that children drove them to engage in recycling, nor that children were taught to at school to recycle.

#### 4.3.3 Stakeholder -- The Private Recycling Agent

With regards to this stakeholder, the case study reveals aspects that help the recycling effort at Sin Sup as follow.

##### a. Availability

As mentioned earlier, there is one in-house recycling agent who lives in Sin Sup and conducted business in her own home there. There are also several recycling shops located within the vicinity of the community. Residents who are price conscious may compare the price offered and decide to bring trash out to different agents they prefer. The availability of recycling agents helps enhance the recycling activities at Sin Sup. According to the in-house agent, about 10% of residents sell to recycling agents outside.

Photograph 4.6: The Recycling Agent at Sin Sup.



*Note: The agent with her son in front of their home-turned-recycling-shop inside Sin Sup. Photograph taken in January 2012 by the author.*

**b. Reliability**

The in-house recycling agent admitted that when she was unable to pick up recyclables in a timely manner, residents would get rid of recyclables they accumulated and cease source separation, thus hurting the recycling effort. However, currently the agent's son and husband are now spending their full-time at home helping her with the business so she has more help. Also the availability of recycling shops nearby enables many willing residents to still continue with recycling by bringing recyclables to these shops themselves.

4.3.4 Stakeholder -- The Local Authority

Sin Sup is located under the jurisdiction of Bueng Yi Tho municipality in Pathumthani. The municipality has its trash collection unit that goes to collect trash in public areas and communities, such as Sin Sup. Like in any other municipality, the unit derives overall policies from the PCD (including recycling), while it creates its own implementation plan, such as collection routing and scheduling, and waste disposal scheme. According to an officer at the unit, the municipality collects about 40 tons of trash a day using 8 of its trash trucks. Collected trash is contracted to be transported to a dump site in Ayudhya province, where there are 200-300 waste pickers working. Along the way to the dump site, his trash collectors who engage in waste picking en route would sell recyclables to recycling shops. Proceeds are to be shared among the workers who work with each trash truck. This is very similar to current practice at the BMA's districts.

**a. Commitment from Policymakers on Recycling**

According to a key informant who is knowledgeable in the waste management unit of the Bueng Yi Tho municipality, the unit's director initiated a recycling program in 2009 in which the unit sent its staff out to meet with community leaders to promote recycling (e.g., train people how to sort packaging waste, make organic fertilizers from food waste). However, only open communities, and no gated communities, are targeted in the



initiative. This is along the line as in other local authorities in this research. The training is to raise awareness and to prepare community members for better management of their own waste, since overflowing trash is a constant problem in open communities. In any case, the active leader at Sin Sup gave a negative account of the commitment from the local municipality on recycling.

“When I first wanted to hold the first recycling event, I went to talk to the municipality wanting to get some funding from them – just around 5,000 baht for the cost of vinyl and some other promotional materials. They thought I was crazy and wanted nothing to do with it. I went ahead anyway with my plan, using my own fund”, (CS\_SS1, Interview, 24 December 2012).

**b. Conflict of Interest by the Waste Collection Department or its Personnel**

Like other municipal or district trash collectors, those at Bueng Yi Tho municipality engage in informal waste picking during collection time. They share proceeds from recycling among themselves (i.e., 4-5 workers who accompany each truck), according to the key informant at the municipality. He said, however, that there are no kickbacks to him or others outside those collection workers.

The pro-recycling leader gave her account during the interview that at one point the recycling effort was undermined when the municipality’s trash collectors failed to show up to collect trash on time for a period of two weeks. She said that this was because these workers are low paid and need to sort recyclables during collection to supplement their income. The promotion of household recycling at Sin Sup meant a smaller amount of valuable trash for these collectors. Fortunately she was able to use her networks to revert the situation through the help of the local mayor.

On the other hand, the trash collection unit’s officer at the municipality in which Sin Sup is located denied that the situation ever took place and that

his municipality always makes sure to collect trash completely. They would borrow trash trucks from other districts nearby if they have to in order to make sure trash is collected on time. Although he admitted that trash collection workers sort trash on the trucks, he stated that he would order his workers not to sort trash if it seems that the schedule is tight. However, this contradicts another account from Sin Sup's administrative office manager who reveals that many times the municipality's trash collectors would pick through trash at curbside trash bins in the community, take away only recyclables of value, and leave the rest uncollected.

**c. Regulations**

The key informant at Bueng Yi Tho municipality stated that his municipality mostly deals with enforcing existing law stipulated in the Public Cleansing and Orderliness Act of 1992, for example, the law prohibiting littering in public. The municipality never utilized its mandate according to the Public Health Act of 1992 to issue any regulations concerning recycling; nor did he think that it should as he saw it as a national instead of local agenda.

**d. Workload**

An interview with the administrative office manager reveals that there is a constant problem of waste not being collected on time by the municipal trash collection service. Many times the municipality would skip pickup, leaving much waste left uncollected. The community would then have to contract some private trucks to haul away uncollected trash to be burned at its own expense. According to a senior officer at the municipal's trash collection department of Bueng Yi Tho, en route waste picking causes much delay in trash collection in his municipality.

#### 4.3.5 Summary of the Case Study of Sin Sup

The following summarizes the potential success and challenges at Sin Sup based on the field research.

**Potential Success Factors:**

Several potential factors related to the gated community of Sin Sup as a stakeholder are similar to those at Maeg Mai, such as social capital, convenience, civic mindset, and perceived image on recycling. In the aspect of social capital, there are strong pro-recycling leadership, supporting committee, volunteers, as well as networking by the leader to acquire resources outside her gated community. Moreover, the private recycler on premise assumes the work of field workers in collecting recyclables. At Sin Sup, not only is there a sheltered storage for collected recyclables similar to in Maeg Mai (albeit in the form of the home of the private recycler on premise), there is also added convenience of flexible collection time for residents. Civic mindset and positive perception on recycling may also be potential success factors as they appeared to exist among interviewees at Sin Sup. On top of these, another potential success factor at Sin Sup is its lower economic status, compared to other gated communities, thus rendering its resident attracted to gains from recyclables. Children, on the other hand, does not seem to be a success factor since no interviewees indicated children as a reason for them to recycle waste.

The potential success factor related to private recyclers at Sin Sup is the same as at Maeg Mai – the availability of private recyclers.

With regards to the local authority, there is no evidence from field research showing the local municipality to play any supporting role for Sin Sup's recycling campaign.

**Potential Challenges:**

In terms of challenges arising from the gated community itself, the absence of administrative office might potentially impede recycling by not having staff to handle public relations. Fortunately, Sin Sup has an active leader who is willing to spend on PR using her own budget.

Regarding private recyclers, a potential challenge to recycling efforts also appears to be the unreliability of the private recycler on premise, due to recyclables not being picked up on time. Fortunately, this issue is averted at least for now because the recycler now has a husband and son helping.

Just like in Maeg Mai, a potential challenge from the local authority may stem from its lack of involvement on gated-community recycling as well as its enormous workload and the lack of regulations of any kind concerning recycling. The issue of municipal trash collectors having conflict with Sin Sup due to its recycling program could not be confirmed.

#### **4.4 Conclusion from the Two Most Successful Gated Communities**

Based on case studies of these two most successful gated communities, the following is a list of the most important success factors that drive the outcome in recycling in these two case studies.

- The existence of the 5 aspects of social capital – active leadership, supportive administrative/field staff, supportive committee, volunteer, and networks
- Convenience -- of having a temporary sheltered storage area, plus of flexible pickup time for the case of Sin Sup.
- The low economic status for the case of Sin Sup
- The civic mindset of members of the community
- The positive perception on recycling
- The availability and current reliability of the private recycling agents

Besides success factors, challenges faced by the two gated communities are identified as:

- Unreliability of the private recycling agent as experienced in the past
- The lack of authority's involvement in community recycling, the lack of regulations concerning recycling, and huge workload by the trash collection department

## CHAPTER V

### CASE STUDIES OF UNSUCCESSFUL COMMUNITIES

#### 5.1 Introduction

This chapter will determine the most significant challenges that impede the efforts of recycling in the two least successful gated communities. The case studies of moo baan Discovery Bali Hii and moo baan Laddawan (Pinklao), in which the recycling program has been discontinued, will be explored here.

The following sections will start with the analysis of the 3rd case study – Discovery Bali Hii in Section 5.2. This section will give an overview of the gated community. Then it will analyze each of the three stakeholders (i.e., the community, the private recycling agent, and the local authority) in order to determine the most important challenges relating to each of them that drive the outcome of recycling in this case study. Then it will provide a summary of the case study. After that, by following the same structure as that of the 3rd case study, the 4th case study – Laddawan (Pinklao) -- will be analyzed in Section 5.3. Lastly, a conclusion will be made about the challenges faced by these two least successful gated communities, thus answering the second research question, namely:

*What are the most significant challenges that result in failed recycling among the least successful gated communities?*

## 5.2 Case Study 3: Discovery Bali Hii

Photograph 5.1: Inside the Discovery Bali Hii Community



*Note: A typical single home inside Bali Hii.*

*Photograph taken in January 2012 by the author.*

### 5.2.1 Overview

Discovery Bali Hii is a gated community located to the north of Bangkok in Pathumthani in the BMR. There are a total of around 320 single-home households within the community, with average land size of 50-65 sq. wa. Located about 15-minute drive from Sin Sup, Bali Hii is in a higher economic stratum. Homes, although small to medium in size, are well maintained and the community is strictly residential. Most people work outside of home. Some residents, especially those who have moved in longer, enjoy club activities together such as walking and aerobic exercise, although most residents still keep their privacy – something very common in gated communities throughout Bangkok.

Bali Hii joined TIPMSE in 2008 after being approached by TIPMSE via an invitation letter to the committee at the time. After being briefed by TIPMSE regarding the potential gains from selling recyclables to any private recycler, and the amount of trash that could be reduced from the environment, the committee decided to join the program. Like at Maeg Mai, Bali Hii's residents who joined the program were trained on recycling and were given sorting bins which they would place in front of their homes every Sunday for collection by the administrative staff of the gated community. After the sale of these recyclables to an outside agent who would come in to weigh and buy them, proceeds were to be half for the central fund, and the other half for the community's field staff who handle the recyclables. The project started off well with over 50% of households that participated. The community even went so far as to join in TIPMSE's recycling competition with other gated communities in 2009. However, later that year, it decided to drop out of the contest and of the recycling project completely. During this research, many of its residents<sup>12</sup> in the interviews still expressed the desire to recycle, but cited the lack of a system as the main obstacle.

The following sections 5.2.2 – 5.2.4 will analyze each of the three stakeholders of the case study at Discovery Bali Hii, by discussing findings on the main challenges of recycling effort in this community. (For a summary of findings from case studies in comparison to other gated communities, see Table 6.1 in Chapter 6.)

### 5.2.2 Stakeholder -- The Gated Community (Discovery Bali Hii)

#### a. **Social Capital (Factor 1.4.5)**

##### ▪ *Actively Pro-Recycling Leader*

A campaign on recycling in a gated community can usually be promoted by either committee members or regular residents who are active on the issue. At the time when recycling was promoted at Bali Hii, it was done by one active committee member. But that was during 2008. Since then, she left

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<sup>12</sup> e.g., CH\_BS1, CH\_BS2, CH\_BS5, CS\_BH6, CS\_BH7, CS\_BH13. (See Appendix A for interviewees' profiles.)

her post due to certain conflicts she had with other committee members, therefore no longer engaging herself on the issue of recycling.

“Bali Hii did very well on the project at first. They had [the previous pro-recycling leader] who was very active in promoting it and being hands on. But now it flopped since she had conflicts with other members and it seems now she moved out of the moo baan”, (TIP1, Interview, 24 August 2011).

“We used to have one auntie in the moo baan who spearheaded the recycling effort. But she is no longer involved due to old age and health”, (CS\_BH3, Interview, 25 December 2012).

At the time of the research, however, there was one non-committee resident who expressed a strong desire to bring back the recycling project at Bali Hii. Her sister, also a resident at Bali Hii, is now launching her own informal outfit which works with 3 other communities on recycling. In talking to the prospective leader and her sister, one could feel that they are both very enthusiastic about recycling, are active citizens, and want to contribute to the society they live in and beyond. Bali Hii might find more success in its future effort because when leaders are not tied to the committee, there is higher chance for the project to be sustained in the long run.

“I want to restart the recycling project but I don’t want to be on a committee to do it. If we have to wait for the committee then it’s not going to be sustainable because they change all the time. I think if there are many people who join me, then we can get it implemented. So many people I talked to wanted to have the system back”, (CS\_BH1, 6 January 2012).

The start of involvement from this potential leader was stated by one resident who is a current and past administrative office manager as well as the project manager at TIPMSE:



“For several times lately, [the prospective leader] gave talk to residents about recycling at our recent community meetings. She wants to resume recycling here and is trying to get residents to join in”, (CS\_BH3, Interview, 25 December 2012).

“I’m resuming talk with Bali Hii. [The new prospective leader] is very much into it. I know her through her sister who works on a recycling project at the Din Daeng Flat (a congested community in a government housing complex). [The new prospective leader] wants to get Bali Hii to start recycling again”, (TIP1, Interview, 10 January 2012).

- *Pro Recycling Volunteer Group*

At the time when Bali Hii ran a recycling program, there were no volunteers who helped support the previous pro-recycling leader. The previous leader would prefer to work alone, according to one informant who also pointed out that it led to lack of transparency which was an issue when later on some residents raise a question of where proceeds from the recycling project went.

- *Administrative and Field Staff*

Like in the majority of the gated communities where this research was conducted, the administrative office was in charge of handling and facilitating recycling at Bali Hii. It had to allocate some of its workers to pick up recyclables that residents put out in front of their homes, bring them to a central location for further sorting, then coordinate for the recycling agent to come in and haul them away. According to an informant, these workers could not handle the amount of work especially at the beginning when they had to weigh trash on the spot for every home in order to keep detailed records. Even afterwards when on-the-spot weighing was abolished, there were still too many tasks for them to handle. Since these tasks of managing recycling waste was added on to their usual job functions, they were compensated by getting a cut of 50% of proceeds from recycling every time it was sold. According to

the informant, this led to these workers being too attracted to the proceeds from recycling at the expense of their main jobs of running the day-to-day operation at Bali Hii. This resulted in many complaints by residents who started to reassess the merit of recycling.

Compare Bali Hii with Maeg Mai where both had a similar system of recycling and both offered the administrative workers 50% of proceeds from recycling to compensate for their recycling effort, the results are starkly different. This could be due to many inherently different characteristics between the two communities including the difference in the innate ability of the staff there. Note that, unlike in most other gated communities where the administrative staff is hired personnel from outside, administrative staff at Bali Hii composes of residents who live there. One interviewee pointed out the difficulty of holding such staff accountable, transparent, and efficient when that is the case. When administrative staff cannot handle recyclables competently, it unavoidably means the end of a recycling project.

“How could [the administrative staff] do a good job when they could not be held accountable [because they had relation with the committee]? [The committee] said they wanted to hire residents to work at the office so that we save cost. But that also comes with a price. I totally disagree with such hiring”, (CS\_BH2, Interview, 13 January 2012).

- *Pro-Recycling Committee*

Bali Hii constantly changed its elected resident committee due to internal problems with the management of the community<sup>13</sup>. Such change was cited by three residents<sup>14</sup> who were interviewed for the research as the main obstacle to recycling. They also cited the lack of transparency of previous committees as obstacles to the recycling effort because residents were disenfranchised by it.

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<sup>13</sup> Cited by CS\_BH1, CS\_BH2, CS\_BH3

<sup>14</sup> CS\_BH1, BS\_BH2, CS\_BH6

“At the time when we had the recycling project, we ran into the problem of lacking the appropriate facility to store trash temporarily. So there was a plan to build a sheltered area with large bins. However, it never materialized because we kept changing the committee. Every time that happened, it always disrupted the continuity of any plans”, (CS\_BH3, Interview, 13 January 2012).

“We keep changing our committee. That’s why we never have any recycling system in place. We had one a while ago but when new teams of committee took over, they never really continued with the project”, (CS\_BH6, Interview, 25 December 2012).

“When [the ex-committee member who was pro recycling] left, no other members picked up on the issue. The project is controversial because it involves money. So nobody wants to touch it. If someone wants to do it, they must do it in a way that makes things transparent regarding where proceeds go”, (CS\_BH2, Interview, 13 January 2012).

- *Networks*

Based on information gathered from all interviewees, there is no evidence that Bali Hii engaged in networking or reaching out to resources outside the community in order to support recycling at Bali Hii.

**b. Temporary Shelter (Factor: Convenience)**

An interview with one resident, who also served in the community’s administrative office during the time when the recycling project was ongoing in 2008-2009 and is now back in the office again, revealed that the problem about social capital was compounded by the fact that Bali Hii lacks an appropriate temporary sheltered storage space for collected waste awaiting pickup by the recycling agent. All collected recyclables had to be piled up in the open week after week before the amount was large enough for the

recycling agent to come in. The lack of separate compartments for storing sorted trash caused yet more burdens for workers to manage recycling. The sight was also an eye sore, resulting in many complaints by residents. It was also a big problem when rain fell. The impracticality of not having a waste shelter was cited by the past and current administrative staff person to have partially impeded the feasibility of the project.

“If we are to do it again, we would need to have a proper sheltered area for storage”, (CS\_BH3, Interview, 13 January 2012)

**c. Other Factors**

Regarding civic mindset on waste issue, many residents interviewed expressed awareness about waste problem. Some of them cited their own workplace as a source that instills recycling habits as their factories have a recycling system in place. They also perceived recycling in a positively light, as opposed to something to be conducted only by the poor to gain extra income. Like the other two case studies, no one stated that their children have been taught at school to recycle and thus wanted to practice it at home.

5.2.3 Stakeholder -- The Private Recycling Agent

The private recycler used in the past by Bali Hii did not seem to pose any challenge or cause the failure of the recycling project then, as seen below.

**a. Availability**

Contact information about the private recycler used by Bali Hii in the past could not be obtained from any interviewees or key informants at Bali Hii. However, observation during field research found that there are recycling shops within 1 kilometer of the community. The same shops near Sin Sup may even be used since the two gated communities are located 20-minute-drive away from each other. Therefore, availability is unlikely an issue.

**b. Reliability**

Based on information gathered from the ex-administrative resident, the agent they used before was prompt and efficient, and did not cause the failure of the project.

5.2.4 Stakeholder -- The Local Authority

Discovery Bali Hii is located in Laad Swai municipality of Pathumthani to the north of Bangkok. Like in other gated communities interviewed for the research, the previously existing recycling project at Bali Hii had nothing to do with the municipality who sent in its trash truck for regular trash collection. Interviews with an employee and also the head of the municipality's trash collection unit reveal that their unit only emphasizes collection of as much waste as time and manpower allows. Like other municipalities, the municipality of Lad Swai receives high level policies from the PCD, but sets its own implementation plan including collection route and collection schedule. Every day the municipality trash collectors will collect trash from public areas and households, sort it en route for recyclables that can be sold for their own gain (as part of the informal system of waste recovery), then dump the rest at a waste transit site in the province. According to the head of the waste collection unit, the transit site started off as a landfill. However, over time, it became full. These days it is operated as an open dump site in which many waste pickers go to sort out recyclables, similar to ones under the BMA. From time to time the PCD would advise the municipality on spraying the site for sanitization. Periodically, waste at the site would be hauled away by private contractors to be disposed of at a final disposal site located at least 50 kilometers away, as stipulated in a contract. In many ways, the current handling of waste at municipalities like Laad Swai resembles how waste is handled at the BMA.

**a. Commitment by Policymakers on Recycling**

Deriving general policies from the PCD, the municipality of Laad Swai has a project to promote recycling in open communities, although the plan has been postponed due to the flood in 2011. There is no evaluation of any recycling project, according to the head of the trash collection unit who was interviewed. The head of the unit expressed doubt about any potential source separation project that sees the municipality play a big role. The main obstacles to such a project cited by him are manifold. Firstly, he doubted that the public would be disciplined enough to discard trash according to trash types specified by separate recycling bins. Secondly, such a project would entail a large amount of work – something that is impossible considering the huge workload at present. Thirdly, he thinks that his collection workers would be affected if proceeds from collected recyclables, commonly shared among these workers, no longer go to them. Last, but not least, there is lack of facility to handle sorted trash, both at the municipality's waste transit site – an open dump site – as well as at the final disposal site (located at least 50 kilometers away) to which waste would be transported before final disposal by private firms. Such complex problems as perceived by the authority who handles waste in the field is important in understanding why policies on recycling usually do not end up implemented successfully.

**b. Conflict of Interest by the Waste Collection Department or its Personnel**

Similar to the BMA's trash collectors, those at Lad Swai and other municipalities also engage in waste picking en route to supplement their income. The trash collector on call who was interviewed gave an example of a worker's salary of 5,000 baht per month being supplemented by 3,000 baht per month from recyclables. The head of the trash collection unit admitted that workers' welfare would be affected if they are unable to engage in this informal activity. However, both of them said that it does not necessarily result in workers not showing up to collect trash on time, because the public would not accept long service interruption.

**c. Regulations**

Like in other local governments, the municipality of Laad Swai has never issued any regulations concerning recycling. Citing the Public Cleansing and Orderliness Act of 1992, the municipality only issued a law banning trash burning. Like everywhere else in Thailand, residents are not required by law to recycle. Nor are there scheduled pick up or depots for recyclable waste.

**d. Workload**

Similar to the case of other local authorities in this research, interview with the trash collector on call and the head of the unit reveals that the main problem faced by the waste collection unit at Lad Swai is the workload, that its workers constantly fall behind on trash collection, and that they receive incessant complaints from the public.

“There are so many communities along this main road as you see. It takes our trash trucks one full day just to go into some of these big moo baans for example. We receive complaints all the time [for not being able to collect trash on time]....”, (Muni2, Interview, 10 February 2012).

### 5.2.5 Summary of the Case Study of Bali Hii

The following will summarize findings from the case study of Bali Hii that point to potential challenges faced by the gated community, resulting in its failed recycling attempt.

Challenges that Bali Hii faced that derive from the community itself are the lack of social capital and inconvenience of the recycling system. With regards to social capital, field research shows that Bali Hii lacked all 5 aspects that were identified in the earlier case studies. It had an active leader at the start of the program. The success of the project only lasted until the leader stopped being active in the project. The administrative office seemed to have problems about its administration and accountability. The committee of Bali Hii also kept changing so there could be no continuity of projects. Volunteers were nonexistent at the time. Finally, there was no

networking done in order to acquire resources from outside. With regards to inconvenience, the lack of a temporary sheltered storage area was pointed out by one key informant (the ex-admin and current staff person) as an obstacle for the recycling project at the time. Since residents appears to be civic minded about waste, and perception on recycling is positive, it can be concluded that these two aspects are unlikely main factors for recycling, because Bali Hii still failed in spite of them.

The private recycler used by Bali Hii in the past did not seem to pose any challenges to the recycling project. Field observation discovered several recycling shops in the vicinity, therefore availability should not be an issue. Information gathered from the key informant also shows that the recycler was reliable in its service.

With regards to the local authority, there seems to be no direct challenges posed by it that could have adversely affected Bali Hii's recycling project. However, lack of involvement, lack of regulations on recycling, and huge workload of the authority could potentially hurt the effort indirectly.

### 5.3 Case Study 4: Laddawan (Pinklao)

Photograph 5.2: The Entrance of the Laddawan (Pinklao) Community



*Note: The entrance of the luxurious Laddawan (Pinklao).*

*Photograph taken in January 2012 by the author.*



### 5.3.1 Overview

Laddawan (Pinklao) is a large and affluent gated community located on the Thonburi side of Bangkok. The area is home to many upper-middle-class gated communities as it is conveniently located relatively close by to several bridges going to downtown Bangkok across the Chaopraya River. Laddawan has a total of 350 households, with land sizes ranging from 100 to over 500 sq. wa. Many of its residents are executive or business owners, according to a key informant. It had joined TIPMSE's recycling project in 2010 for 4-5 months. When it was approached by TIPMSE to start recycling, the chair of the committee at the time invited the staff of the organization to Laddawan to give talk to the committee about the benefits of recycling. Residents were also taught how to sort waste. When the project was implemented, there was a huge interest by residents. Residents would bring out recyclables in front of their homes twice a month for pickup. The administrative office would send its workers to collect and bring recyclables to an open area under a tree to accumulate, until the amount was large enough to call in the recycling agent to weigh and buy them. At the time, recycling brought in about 3,000 baht per month to Laddawan. However, with such added responsibility on top of regular work taken by the field workers, after 4-5 months the committee decided that things did not work out and so the project was completely cancelled.

The following sections will analyze each of the three stakeholders of the case study of Laddawan (Pinklao), by discussing findings on main challenges of recycling effort in this community. (For a summary of findings from case studies in comparison to other gated communities, please see Table 6.1 in Chapter 6.)

### 5.3.2 Stakeholder -- The Gated Community (Laddawan Pinklao)

Only two resident interviewees could be contacted for this gated community – the ex-chairperson of the past committee, and the current administrative office manager. The ex-chairman cited privacy of his residents as a reason why no other contacts could be given out. Based on information from these important key

informants however, it is sufficient to draw a conclusion below about challenges resulting from elements within the community itself.

**a. Social Capital**

▪ *Committee*

The ex-chairperson identified himself as the point person on the committee who promoted recycling project then. Judging from the interview with him, the ex-chairman did not show a strong inclination towards recycling. Throughout the interview, he repeated his point about recycling not being a main priority of his community compared to more important issues such as security, upkeep and privacy.

“When TIPMSE approached us, I was the ex-chairman of the committee. I agreed in general with TIPMSE’s push for recycling, that’s why I agreed for them to come in to help us set up the project. However, there was so much work for us to do – from our field workers having to collect recyclables, sort them in detail, and weigh them. They even had to load the recyclables up to the truck for the recycling agent! We would like to run the program but if it’s such a hassle then we’d rather not do it, since our priority is to focus on running the moo baan’s day to day operation, and never on recycling”, (CS\_LP1, Interview, 8 January 2012).

▪ *Active Pro-Recycling Leader*

When asked if Laddawan had any active leader who pioneered recycling there, the ex-chairperson identified one senior medical doctor living in the community who expressed the desire to see recycling promoted at the time. However, he stated that the doctor was not involved in detail and was never really hands on. This is different from what this research has found in other gated communities where recycling is more successful; and starkly different from those in the three previous case studies.

“There was one highly respected physician who wanted to see recycling done in our moo baan. He proposed high-level ideas [but never went into detail or really pushed for it]”, (CS\_LP1, Interview, 8 January 2012).

- *Volunteer*

Interview with both the administrative office manager and the ex-chair reveals that there has never been any volunteer group to work on initiating the recycling project at Laddawan either. Most residents demand high privacy and do not want to be disturbed, according to the ex-chairman. They also rarely interact with one another, according to the administrative manager. Such a lack of interaction among residents also makes spreading of discussion about recycling via word of mouth unlikely. As stated by the administrative manager, residents mostly keep to themselves.

“I never heard of any active group of residents working towards recycling here. There are some exercise groups like yoga or aerobic, for example. But a very tiny number of people join -- only 10 out of the entire moo baan of 500 households”, (CS\_LP2, Interview, 8 January 2012).

“All of our residents are high-level, successful people who just want privacy at home. They are mostly executives in their own fields. They want to be free of minor details, and not being bothered is an important thing they care about when they come home”, (CS\_LP1, Interview, 8 January 2012).

- *Administrative and Field Staff*

Without tacit approval from the committee or a push from a large enough group of residents, it is certain that the administrative and field staff would not be expected to work on facilitating recycling because they have their main tasks to care for; hence the failure of the project.

- *Networking*

There is no point for Laddawan to engage in networking outside the community to acquire resources for the recycling project, when there is no will to push for recycling at home.

“Networking to get resources from outside was not an issue. I myself am a parliamentary representative and am very well connected, so we could easily reach outside the moo baan to get resource if we had to. The real issue was that we didn’t expect to have to bear the heavy burden that came with the recycling project [so we discontinued it]”, (CS\_LP2, Interview, 8 January 2012).

**b. Convenience**

▪ *Temporary Sheltered Storage*

At Laddawan, once recycles were collected, they were left accumulated outdoor on the ground. It would likely be a problem during the rainy season. As in many gated communities where no such sheltered area exists, recycling cannot be done effectively.

▪ *Sorting Bins*

The ex-chairman of the committee also cited the lack of appropriate sorting bins distributed to each household as another reason for the failure of the project. At Laddawan, only around 10 households received TIPMSE’s sorting bins. Many residents had to use plastic bags instead to store sorted waste. When these bags are placed on the curbside, they would be rummaged through by dogs, leaving messy scenes and resulting in resident complaints. It is not clear why such problem about dogs going through plastic bags is highlighted at Laddawan and nowhere else in this research even though these other communities also use plastic bags due to the small size of TIPMSE’s bins. It is possible that communities in a high economic status demand high level of convenience in order to recycle.

**c. Economic Status**

It should be noted that Laddawan (Pinklao) has by far the biggest homes among gated communities where this research was conducted. Its average land size is 200 sq. wa compared to 50-70 in most other gated communities, and going up to over 600 sq. wa. The ex-chairman pointed out that the monetary gain from selling recycling cannot be used as an incentive to entice his community to recycle due to the high income level of his residents. This coincides with information gathered from key informants<sup>15</sup> who observed that the better-to-do the community is, the less it would want to participate in the recycling program because they are unlikely to be enticed by the small proceeds from recycling. It is possible that economic status is another important factor that determines the success of recycling.

“When TIPMSE came in to pitch recycling to us, they really missed the point when they kept emphasizing income from recycling. We don’t need proceeds from recycling as our residents are all well-to-do and we have enough money accumulated for the central community fund, to tell you the truth”, (CS\_LP2, Interview, 8 January 2012).

#### **d. Other Factors**

The ex-chairperson’s view on *civic mindset* seems much weaker compared to interviewed residents in the other 3 case studies -- he was negatively surprised about the amount of work that his staff needed to contribute to the recycling program. His *perception on recycling* is positive nonetheless. Although money cannot be used as an incentive for his community to recycle, he recognized the benefit recycling does to the environment and cited it as the reason he encouraged recycling to be done at Laddawan in the first place. Since only the ex-chairperson of the committee was interviewed on these issues, more research would be needed to draw any conclusion on this case. Nevertheless, since he was a key decision maker on the recycling project at Laddawan, it is still useful to learn about his view as discussed above.

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<sup>15</sup> TIP1, TIP2, BMA1, BMA2, DT1, DT2. (See Appendix A for interviewees’ profiles.)

### 5.3.3 Stakeholder -- The Private Recycler

The contact information of the private recycling shop was provided to Laddawan by TIPMSE. However, the recycler could not be identified because the previous project manager at TIPMSE who had information of Laddawan's case has left the organization. And neither one of the key informants at Laddawan has the contact information. However, information gathered from the ex-chairman at Laddawan regarding the private recycler can be seen below.

**a. Availability (Factor 1.4.10)**

The current project manager at TIPMSE specified that there are recycling shops available in Talingchun area. So availability does not seem to pose a challenge.

**b. Reliability (Factor 1.4.11)**

One of the obstacles cited by the ex-chairman was the fact that the private recycler Laddawan used failed to facilitate the recycling efforts because it did not help with the process of loading trash into the recycler's truck. All the loading work was done by the community staff whose workload was already increased with collecting, sorting and storing of recyclables. Even so, it is likely that this is not a main obstacle. If the community sincerely wanted to continue its recycling effort, it could have looked for a new recycling shop. As it turned out, recycling was given a low priority that nobody bothered to look into finding a new one.

### 5.3.4 Stakeholder -- The Local Authority

Laddawan (Pinklao) is located within the jurisdiction of Talingchun district under the BMA. It deals with the district on the basis of regular trash collection. Like in other gated communities in this research, the only role that the district plays with

regards to recycling at Laddawan is informal in the form of district trash collectors sorting out recyclables en route during their regular mixed-trash collection.

**a. Commitment from Policymaker on Recycling**

Talingchun is the district that is most committed to recycling among other local governments interviewed for all case studies. Many recycling projects were initiated in 2009 with the support of the district director who is pro-recycling, according to key informants at the district itself<sup>16</sup> and at the BMA's Environmental Department<sup>17</sup>. Besides training open communities on source separation and making fertilizers out of food waste, they also started a school milk-carton recycling program in which cartons were accumulated for a manufacturer of products made from paper foil in milk cartons.

In terms of its involvement with gated communities, they used to initiate a recycling program among gated communities by selecting one gated community<sup>18</sup> to be in their pilot project for a year, although currently the district no longer targets these gated communities. During the program at the time, the district would send its trash truck to collect recyclables on a scheduled basis in front of residents' homes inside this pilot community, something that is not the district's usual protocol. Then recyclables would be sorted further by BMA trash collectors and stored in a temporary sheltered storage area that the district constructed specifically for this purpose. Once they reached a large enough amount, those recyclables would be sold to a private recycling shop (run by one of its district workers). The proceeds would be returned in full to the community – usually around 2,000-3,000 baht per month. The district essentially absorbed all the work needed to run a recycling system in the gated community. The key informant at the district considered the project a success judging from the relatively constant amount of recyclables collected from residents. Key informants at the BMA's

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<sup>16</sup> DT1 and DT2. (See Appendix A for profiles of interviewees.)

<sup>17</sup> BMA2. (See Appendix A for profiles of interviewees.)

<sup>18</sup> Nunthawan (Talingchun) – one of the gated communities in Group C in this research

Environmental Department<sup>19</sup>, on the other hand, pointed to the unsustainability of such projects due to the amount of hand-holding that the district offered to this pilot community in taking over all the work that was supposed to be incurred to the community. These Environmental Department experts were right in that, after the end of the pilot project, recycling activity at this pilot gated community has eventually dropped.

Presently, other recycling projects in the district involve only open communities. When asked why such projects are not promoted among gated communities, the deputy head of the district's trash collection unit stated that the better economic status of residents makes it difficult to entice them to see the value of recyclables. It is also difficult to reach their committee leaders since they do not come for meetings with the district, unlike those at open communities.

“The BMA has plans to promote recycling among open communities where we would train them on how to sort trash for sale and make fertilizers from organic waste. We do not target gated communities now because it's very difficult to get to them. They're never interested in joining our meetings”, (DT2, Interview, 2012)

**b. Conflict of interest by the Waste Collection Department or its Personnel**

When asked how trash collection workers felt about their loss of income from recyclables proceed being returned to the gated community in the pilot project, a senior officer at the district's trash collection unit acknowledged that there were some complaints by these workers, although they could still find income from trash elsewhere. Both him and his senior manager interviewed for the research admitted that waste sorting en route is common practice among government's trash collectors. Nevertheless, both of them did not think that the community's recycling project will cause these

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<sup>19</sup> BMA1, BMA2, BMA3



workers to fail to complete their task of trash collection in communities where source separation is ever practiced successfully, due to strict mandate from supervisors to complete the trash collection task. They also stated firmly that they did not have knowledge of any district supervisors, here or elsewhere, receiving gains from proceeds from sale of recyclables.

**c. Regulations**

When asked about regulations concerning recycling, the key informant at the district agreed in general that such regulations are needed.

“I think regulations would help a lot. If we only resort to asking for public participation like what has been done so far, people will only do it intermittently whenever they feel like”, (DT1, Interview, 16 January 2012).

However, he also pointed to the possible failure of using laws and regulations due to the weakness in the district’s ability to enforce any law.

“But it’s useless if we have a law that we cannot enforce. The problem about enforcement is that Thesakit, which is the law enforcement unit at the district level, does a poor job. It is never able to enforce any law (e.g., law banning dumping trash outside public bins, law banning trash burning, etc.) regarding waste management. It only concentrates on street vendors.”

**d. Workload**

An interview with the deputy head of Talingchun District’s trash collection unit reveals a similar picture of the unit being overwhelmed by the enormous amount of trash every day. She said that the size of her workforce and truck fleet is not always enough to match the amount of trash that needs to be collected. However, she said that gated communities have no problem of trash being left uncollected, unlike open communities where residents tend to be less disciplined and have the habit of littering.

#### 5.3.4 Summary of the Case Study of Laddawan (Pinklao)

The following will summarize findings from the case study of Laddawan Pinklao that point to potential challenges faced by the gated community, resulting in its failed recycling attempt.

Quite similar to the case of Bali Hii, major challenges that Laddawan Pinklao faced that derive from the community itself are the lack of *social capital* and *inconvenience*. Support from all 5 aspects of social capital was missing at Laddawan, and lack of appropriate sheltered storage and inadequate bins resulted in inconvenience. On top of this, its high *economic status* could also potentially impede its recycling effort.

Regarding the private recycler, information available could not indicate any challenges to the recycling program at Laddawan.

With regards to the local authority, there seems to be no direct challenges posed by it that could have adversely affected Laddawan's recycling project. However, lack of *commitment*, lack of *regulations* concerning recycling, and the huge *workload* of the authority could potentially hurt the effort indirectly.

#### 5.4 Conclusion from the Two Least Successful Gated Communities

Based on case studies of these two least successful gated communities, the following is a list of the most outstanding challenges that drive failed outcome in recycling in these two communities, thus answering the second research question:

- The lack of multiple aspects of social capital – active leadership, supportive administrative/field staff, supportive committee, volunteer, and networks
- Inconvenience from the lack of appropriate sheltered storage and possibly the insufficiency of sorting bins for residents for the case of Laddawan (Pinklao).

- The high economic status, for the case of Laddawan (Pinklao)
- Unreliability from the private recycler, for the case of Laddawan (Pinklao)
- The lack of commitment and regulations on recycling, and huge workload by the trash collection department at the local governments

**CHAPTER VI**

**APPLYING CASE STUDIES TO THE REST**

**OF GATED COMMUNITIES**

This chapter puts together findings from all the 23 gated communities in order to observe any pattern that may emerge to coincide with findings from the four case studies (also part of the 23 gated communities). In each of these gated communities that are other than the detailed case studies of Chapter 4 and 5, information was obtained via phone interview with a key community member. The summary of findings is in Table 6.1 in Section 6.1 and further details are in Appendix C. Sections 6.2 to 6.4 analyze the findings stakeholder by stakeholder. Finally, a summary is provided in Section 6.5, answering the third research question, namely:

*Are success factors and challenges from the most and the least successful gated communities respectively reflected in the rest of gated communities that have joined TIPMSE, thus driving the outcome of their recycling efforts accordingly?*

**6.1 Summary of Findings from all Gated Communities**

Findings from all gated communities are compiled in Table 6.1 below. All the 23 gated communities are presented in the order according to their recycling performance (i.e., household participation rates) similar to the order in Table 3.1. Below is the description of columns, representing the factors for each stakeholder.

**Social Capital:**

This column shows the existence or the lack thereof of the 5 aspects of social capital – leader, committee, administrative & field staff, volunteer, and networks. “Yes” signifies the presence of the factor, while “No” indicates its absence. Parentheses indicate that although an aspect was not mentioned by the key informant, it exists nonetheless. For example, if active leader is cited by its key informant as

being important, but a volunteer group is not even though such a group exists in the community, then the community will show “Yes: L, (V)” in the Social Capital column.

**Convenience:**

“Yes” signifies that the community recycling system has the convenience factor, while “No” signifies inconvenience. “No need for S” means that there is not a need for the storage; this can be applied in certain communities, for example, Summagorn where the recycling system is done in the form of a recycling market where residents bring recyclables out to a common area for sale directly to a buyer from outside, or Chaiyapruok Suwinthawong for example where recyclables are collected and sold on the same day.

Letters in the parenthesis indicates the aspects of convenience – “S” represents temporary storage, “O” represents other aspects (such as flexible pickup time or sorting bins). For example, “Yes: S, O” means there is convenience from temporary storage and other aspects (of which details can be found in Appendix C).

**Economic Status:**

Average land size of a gated community is used in this thesis as an approximate proxy for economic status of residents in a community as a whole. The size is measured in square wa (where 1 wa equals 2 meters).

**Civic Mindset on Waste Issue:**

Here, “Yes” means interviewees were found to be civic minded about waste issues; in other words, they feel that they are responsible for the waste that they generate. “No” then means the lack of such mindset. This column is greyed out throughout gated communities beyond the four case studies because information obtained from just one informant in each of these communities is insufficient to derive any conclusion on this factor.

**Perception on Recycling:**

Value “Yes” in this column means recycling is viewed in a positive light, while “No” means the view is negative, in other words only poor people would recycle so as to earn extra income. Similar to the Civic Mindset column, this column is also greyed out beyond the four case studies.

**Children:**

Value “Yes” in this column means children prompt the adults to recycle, while “No” means they do not. The column is also greyed out similar to the civic mindset and perception factors above.

**Stakeholder – Recycling Agent:**

For each of the two columns within this stakeholder – Availability and Reliability – value “Yes” means the aspect is present, while “No” signifies the lack thereof. “No (sometimes)” signifies cases where the existence of these aspects is sometimes lacking (but less often than in the “No” cases).

**Stakeholder – Local Authority:**

For each of the four columns within this stakeholder, value “Yes” means the aspect exists, while “No” means it does not, according to the key informants’ viewpoint<sup>20</sup>. For example, for the column “Commitment in Recycling”, “Yes” means that the key informant thinks that the local authority is involved in promoting or facilitating a recycling system of the gated community. “No” means the informant either thinks the authority is not committed, or he/she does not regard the authority as playing any role to support the recycling effort of the community.

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<sup>20</sup> The key informants here refer to members of the gated community, not a staff of the local authority.

Table 6.1 Findings on Factors from All Gated Communities

No	Gated Community	Group	Stakeholder – Gated Community						Stakeholder --Recycling Agent		Stakeholder-- Local Authority <sup>21</sup>			
			Social Capital (L=Leader, C=Committee, S=Staff, V=Volunteer, N=Networks)	Convenience (S=temporary Storage, O=Others e.g., flexible pickup, bins)	Economic Status (land size in sq. wa)	Civic Mindset on Waste	Perception on Recycling (Yes for positive)	Children	Available	Reliability	Commitment in Recycling	Conflict of Interest	Regulations on Recycling	Heavy Workload
1	Maeg Mai (Case Study#1)	A	Yes: L, C, A, V, N	Yes: (S)	70	Yes	Yes	No	Yes	No (sometimes)	No	Yes (but averted)	No	Yes
2	Sin Sup (Case Study#2)	A	Yes: L, V, C N; No need for (A)	Yes: (S), (O)	20	Yes	Yes	No	Yes	No (sometimes)	No	No	No	Yes
3	Chuan Chuen Resident	A	Yes: L, A, ( C ) No: (V), (N)	Yes: (S)	50				Yes	Yes	No	No	No	
4	Prueksa Ville Rattanathibet	A	Yes: L, C, V, N No: (A)	Yes: S	20				Yes	Yes	No	No	No	
5	Summagorn	A	Yes: L, A, (C); No: (V), (N)	( no need for S)	70				Yes	No (sometimes)	No	No	No	
6	Floraville	A	Yes: L, C, A; No: (V), (N)	Yes: S, O	60				Yes	Yes	No	No	No	
7	Chaiyapruet Suwinthawong	A	Yes: C, A No: (L), (V), (N)	(no need for S)	60				Yes	Yes	No	No	No	
8	Nakarin Garden	A	Yes: A, (C) No: (L), (V), (N)	Yes: S	50				Yes	Yes	No	No	No	
9	Chaiyapruet Klong 2	A	Yes: C, A No: (L), (V), (N)	(no need for S)	70				Yes	Yes	No	No	No	

No.	Gated Community	Group	Stakeholder – Gated Community					Stakeholder --Recycling Agent		Stakeholder-- Local Authority <sup>21</sup>				
			Social Capital (L=Leader, C=Committee, S=Staff, V=Volunteer, N=Networks)	Convenience (S=temporary Storage, O=Others e.g., flexible pickup, bins)	Economic Status (land size in sq. wa)	Civic Minds et on Waste	Perception on Recycling (Yes for positive)	Children	Available	Reliability	Commitment in Recycling	Conflict of Interest	Regulations on Recycling	Heavy Workload
10	Munthana Talingchun	B	Yes: C, A No: (L), (V), (N)	Yes: S	150				Yes	Yes	<i>No</i>	No	<i>No</i>	
11	Discovery Balika	B	No: L, C, (A), (V), (N)	Yes: (S)	60				Yes	Yes	<i>No</i>	No	<i>No</i>	
12	Greenville	B	Yes: C, A No: (L), (V), (N)	Yes: (S)	110				Yes	No (sometimes)	<i>No</i>	No	<i>No</i>	
13	Baan Fah Green	B	Yes: L, V No: C, A, (V), (N)	No: S	45				Yes	Yes	<i>No</i>	No	<i>No</i>	
14	Suchaya	B	Yes: L, (A) No: C, (V), (N)	(no need for S)	65				Yes	Yes	<i>No</i>	No	<i>No</i>	
15	Kunalai	C	No: A, (C), (V), (N) Yes: L	Yes: (S)	50				Yes	Yes	<i>No</i>	No	<i>No</i>	
16	Chollada Baangbuathong	C	No: A, (L), (C), (V), (N)	No: O, S	100				Yes	Yes	<i>No</i>	No	<i>No</i>	
17	Seewalee	C	No: C, (A), (L), (V), (N)	Yes: S	70				Yes	Yes	<i>No</i>	No	<i>No</i>	
18	Nunthawan Talingchun	C	No: L, C, (V), (N); Yes: (A)	No: S	150				Yes	<i>No</i>	<i>No</i>	No	<i>No</i>	



No.	Gated Community	Group	Stakeholder – Gated Community						Stakeholder --Recycling Agent		Stakeholder-- Local Authority <sup>21</sup>			
			Social Capital (L=Leader, C=Committee, S=Staff, V=Volunteer, N=Networks)	Convenience (S=temporary Storage, O=Others e.g., flexible pickup, bins)	Economic Status (land size in sq. wa)	Civic Minds et on Waste	Perception on Recycling (Yes for positive)	Children	Available	Reliability	Commitment in Recycling	Conflict of Interest	Regulations on Recycling	Heavy Workload
19	Chaiyapruet Ramindra	C	No: L, C, (A), (V), (N)	Yes: S	200				Yes	<b>No</b>	<b>No</b>	No	<b>No</b>	
20	Chaiyapruet Baangbuathong	C	No: L, C, A, (V), (N)	Yes: S	50				<b>No</b>	<b>No</b>	<b>No</b>	No	<b>No</b>	
21	Private Ramindra	C	No: L, C, (A), (V), (N)	Yes: S	60				Yes	Yes	<b>No</b>	No	<b>No</b>	
22	Discovery Bali Hii (Case Study#3)	C	No: L, C, A, V, N	No: S	50	Yes	Yes	<b>No</b>	Yes	Yes	<b>No</b>	No	<b>No</b>	<b>Yes</b>
23	Laddawan Pinklao (Case Study#4)	C	No: L, C, A, V, N	No: S, O	400	<b>No</b>	Yes	<b>No</b>	Yes	<b>No</b>	<b>No</b>	No	<b>No</b>	<b>Yes</b>

## 6.2 Stakeholder -- The Gated Community

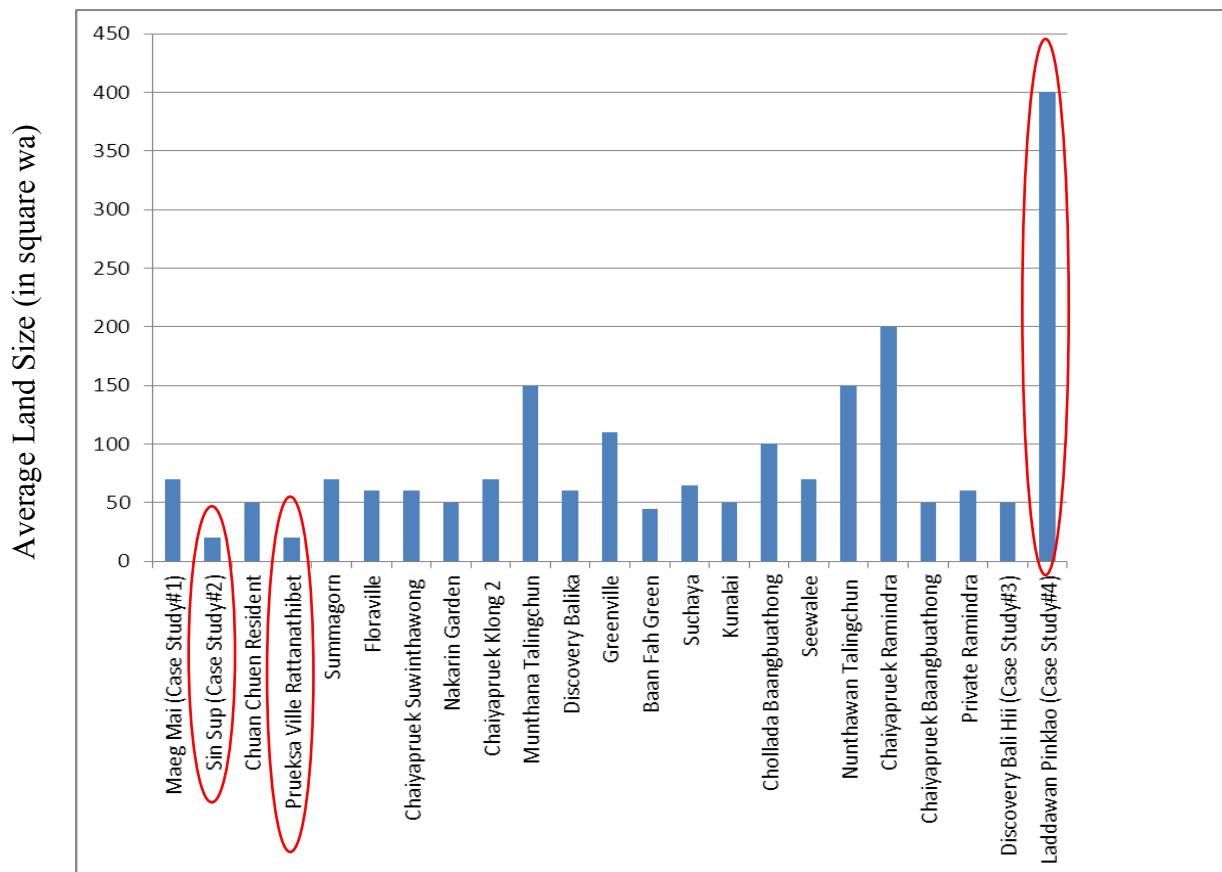
Regarding the social capital aspects of this stakeholder, while the trend is mixed among gated communities in Group B, it is relatively clear in Group A and C. All gated communities in Group A have social capital in at least 2 out of 5 aspects (the 5 aspects being leader, administrative staff, committee, volunteer, and networks), with the two case studies of the best-performing gated communities possessing all 5 aspects. On the other hand, almost all of Group C's gated communities lack the five aspects regarding social capital, with the exception of Kunalai (Baang Yai) and Nunthawan (Talingchun) which are missing four aspects. Therefore, it may be inferred that social capital is an important factor that determines success or failure of recycling outcome in gated communities. This is in line with findings from all 4 case studies.

The factor about convenience in terms of sheltered storage area also shows a similar pattern. At both ends of the spectrum, the two case studies of the best-performing gated communities has temporary sheltered storage, while the two worst-performing ones lack such a storage area. While all gated communities in Group A either have the storage or have no need for one due to same-day transaction of recyclables collection and selling, 4 out of 9 gated communities in Group C lacks such storage; and one out of 5 in Group B lacks storage. Therefore, it is possible that temporary storage is one of the factors that lead to successful outcome, although it may not be the only factor that determines failed outcome. Note also that two communities in Group A also have other features of convenience (such as flexible pickup time) while two in Group C reported other inconveniences aside from the lack of storage (such as insufficient recycling bins). (See details in Appendix C.) Such convenience might have added to the success of these two communities in Group A while the lack thereof put extra strains on the latter two in Group C.

As for the economic status factor, the result is mixed as there is no clear trend that emerges among the 23 communities (see Graph 6.1 below). However, the trend is clearer among the two communities with smallest-sized homes (Sin Sup and

Prueksaville Rattathibet) and the one with the biggest homes (Laddawan Pinklao) where the first two communities find success in recycling whereas the latter one failed. Further research would be needed before the correlation between economic status and recycling performance can be firmly concluded.

Graph 6.1: Economic Status Based on Average Land Size of Homes



*Note: Average land size is used as an approximate proxy for economic status. The graph is sorted in the order of recycling performance (i.e., participation rates), from best to worst.*

The rest of the potential factors – civic mindset, perceived image on recycling, and children – can be studied only among the 4 case studies. In each of the other 19 gated communities that are not case studies, only one interview with a key informant was conducted. Therefore, the information collected is insufficient to qualitatively represent other members of the gated communities. In any case, judging from the 4 case studies, children are not a success factor influencing recycling as findings show

influence from children to be insignificant in all case studies including the two successful ones; nor is perception on recycling important as findings show that recycling is perceived in a positive light in all 4 case studies including the two that failed. Civic mindedness on waste also does not seem to be a major success factor since the existence of this factor in Bali Hii still has not resulted in a successful outcome.

### 6.3 Stakeholder -- The Private Recycling Agent

Photograph 6.1: The Recycling Shop Used by Maeg Mai



*Note: The shop is typical of recycling shops throughout Bangkok.*

*Photograph taken in January 2012 by the author.*

Regarding Private Recyclers, only one gated community, Chaiyapruek Baangbuathong, had a problem finding recyclers to go in to buy recyclables in the community, due to a certain characteristic specific to this community (i.e., the communities' vast area of 400 Rai, which is over 640,000 square meters). Chaiyapruek Baangbuathong is also one of the gated communities in Group C. Based on this, it seems that private recycling agents are prevalent and that, if a gated community cannot find one for some reason, it may be one of the causes that lead to failure of the project.

The other problem that gated communities face from this stakeholder concerns the reliability of recycling agents, especially promptness of collection and efficiency of their operation. While 4 out of 9 gated communities in Group C experienced the reliability problem, 3 out of 8 in Group A experience the problem albeit to a lesser extent (less often), and one out of 5 in Group B experiences it. Note that the 2 best-performing gated communities in the case studies are among the communities in Group A that face such a challenge at times. Two possible explanations can be inferred about agents' reliability as a factor. First, an agent's lack of reliability may be the result of a community not being committed to recycling. When such is the case, the recycling agent will be reluctant to go in to buy and collect recyclables in the community because the small amount of collected recyclables is not worth a trip. Second, lack of reliability can be a cause for (rather than a result of) poor recycling records, but this challenge hurts communities in Group C more than those in better-performing groups due possibly to the fact that gated communities in the better-performing groups possess more success factors (e.g., social capital, convenience) that can offset the adverse effect from the lack agents' lack of reliability. This may explain why Maeg Mai, Sin Sup, and Summagorn still fare well despite the occasional lack of reliability from agents. In any case, due to the prevalence of recycling agents as mentioned above, gated communities should not have a problem switching to other agents if ones they currently use are found to be unreliable, if these communities are truly committed to recycling.

#### **6.4 Stakeholder -- The Local Authority**

Interviews with members of gated communities in all 23 communities found that none of the interviewees perceived the authority as playing any important role in the recycling project of their communities<sup>21</sup>. All of them only cited factors arising from within the communities themselves and from the private recycling agents as relevant to the community recycling project. Interviews with local authorities in the case studies, on the other hand, reveal potential challenges with regards to the

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<sup>21</sup> None of the gated communities' interviewees cited their local authorities as being involved in or facilitating the recycling project in their communities. Nor did they cite any regulations on recycling.

authorities' lack of commitment on recycling, the absence of regulations concerning recycling, and their heavy workload. Since these conditions are there in all case studies regardless of recycling performance of the communities, they should not cause *the difference* in outcomes of recycling among these communities. But they may negatively affect the outcomes of all recycling efforts to the same degree.

Note that even in the most successful group, the average participation rate of households that recycle is no more than 30 percent. Moreover, most gated communities' informants stated that, after the surge in the first year, participation rates remained constant at best. Lack of residents' awareness about recycling was usually cited for the drop in membership. It is still too early to judge the real success of these programs when the majority of gated communities joined the program only 2-3 years ago. Moreover, most other gated communities in Bangkok do not even have a community recycling program set up.

In the long run, it is difficult to imagine how the recycling effort could be sustained without any kind of strategic support from the local authorities. Even in the current informal form of recycling, the BMA could still create the circumstances that are more conducive to promoting waste separation at the source -- for example, by raising public awareness and providing clear guidelines on waste sorting. At the same time, the BMA could also be more active in the recycling activities, both within gated communities and beyond – for example, by providing scheduled pickups for recyclables because many communities do not allow recycling agents in, or by providing sorting bins or setting up central drop-off points. The need for a greater contribution from the authorities, such as the BMA, to the public's recycling program in Bangkok, can be substantiated by the following comment from a BMA expert:

“[In terms of what drives the success and failure of household recycling efforts in Bangkok,] the weakest link lies within the BMA itself. The reason why the public has not been doing enough to recycle is because the BMA has not been doing enough to promote and facilitate it”, (BMA1, Interview, 10 February, 2012).

Therefore, the following section aims to shed some light on the potential causes that lead to the absence of a role of the local authority. These causes could directly or indirectly affect recycling efforts in gated communities. To do this, findings from interviews with officials in waste management offices (e.g., those at the BMA, its districts, and the municipalities outside the BMA) will be discussed. Based on the findings, three causes are identified as important factors, namely: commitment on recycling, potential conflict of interest, and regulation.

#### **6.4.1 Commitment from Policymakers on Recycling**

Although policies on recycling have continued to emerge in the BMA's master plans since 1992 (see Literature Review's Section 2.5.1), implementation of many of its recycling initiatives usually lack continuity, thus reflecting its commitment on the issue. These include initiatives that are no longer in place, such as placement of recycling bins in convenience stores, Sunday pickup for recyclables, a campaign to reduce plastic bags, facility to handle recyclables once collected, etc. Such implementation deficit was admitted by one senior officer at the BMA:

“[High level] Policies on recycling at the BMA are continuous [and are mandated by the PCD]..... However, there is limitation in implementation of these policies”, (BMA4, Interview, 10 February 2012).

Based on findings from interviews with officials, such lack of commitment and implementation deficit can be concluded to originate from the following causes:

##### **6.4.1.1 Change of Leadership**

Based on key informant interviews, recycling initiatives at the BMA have been interrupted with the change of its executives; for example, the school milk carton campaign in 2009 where local schools in Bangkok's Talingchun district competed to send in emptied milk cartons but that was cancelled after two years, or the discontinuation of the use of compartmental trash trucks bought during one

previous Governor for use in recyclables collection. At the highest level, the change of the Governor of Bangkok can lead to a shift in the priority assigned to recycling projects<sup>22</sup>. At the departmental level, the change of executives at the BMA's Environmental Department -- the department directly in charge of waste management -- can also lead to such a priority shift. According to a senior officer at the BMA's Environmental Department, the department's director and its two deputy directors change every 1-2 years. The officer cited this as one of the reasons for the lack of continuation of recycling programs.

#### 6.4.1.2 Lack of Staff in the Field

At the District level, the Public Cleaning and Public Parks (PCPP) Unit is responsible for managing recyclable waste. However, the main priority of the PCPP unit is trash collection. It seems to be unrealistic, according to staff interviewed, to expect the unit to take up more tasks, such as training communities and local schools to recycle, or making extra rounds to collect recyclables, when the PCPP constantly faces the challenge of an overwhelming amount of trash to collect, as found in all case studies.

#### 6.4.1.3 Lack of Public Awareness

Most officers at the BMA attribute one main reason for the lack of continuity of many public campaigns to the lack of public awareness and collaboration. For example, its 2007's initiative to place recycling bins in convenience stores failed because people threw unsorted trash in the bins. In other examples, scheduled recyclable-waste collection on Sunday was not implemented because people expected collection crews to pick up mixed trash as well, and a 2010 campaign to reduce the use of plastic bags did not gain popularity or become main stream.

It is difficult to say whether lack of public awareness on source separation is a result of the lack of continuity of initiatives at the BMA itself or the other way around - or if in fact both feed on each other. In any case, public awareness must

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<sup>22</sup> According to interviews with BMA1, BMA2, and DT1



be raised; yet the BMA may not be in a position to tackle this task alone. Most likely, support from the national government is also needed to run an ongoing public campaign.

#### **6.4.2 Potential Conflict of Interest**

Although field research reveals no incidents that show local authorities or their field workers to have any conflict of interest with gated communities' recycling program, officials in case studies, nevertheless, stated that extensive recycling is likely to threaten the livelihood of trash collectors due to loss of income from reduction in recyclable trash. Information from a BMA officer also indicates that district heads are concerned that their trash collectors would lose income if the public practices source separation.

At the policymaker level, it may be possible that the prevalent practice of informal en-route sorting by trash collectors adds to reasons for policymakers to see no point in extensively promoting source separation, even though the gain from such mid-stream sorting should be weighed against the loss in trash collection time, thus aggravating the already endemic problem of trash being left uncollected due to overwhelming workload as cited in all case studies, as well as the ensuing problem when the public resorts to trash burning which usually happens when trash is left to rot. Moreover, en route sorting cannot be done efficiently because trash is mixed up and because of the tight schedule of collection crews. Based on key informants from trash collection units, at times of exceptionally high workloads, en route waste picking is banned by supervisors (Muni3 & DT2, Interviews). And when such sorting is done, collection crews mainly retrieve trash that is not too dirty, and is relatively valuable – mostly different types of bottles and cans. Paper and assorted plastic (not bottles) is usually left out because they are too stained and time-consuming to retrieve among mixed trash (Muni4 & Muni5, Interviews). One research paper shows that the informal en route sorting accounts for an estimated 7 to 13% recycling ratio of the waste (Valin, 2001).

Photograph 6.2: Waste Picking En Route by a Trash Collection Crew



*Note: A district trash collection crew is engaging in waste picking during their routine trash collection. Bags behind the truck are for storing different types of materials recovered. Photograph taken in Thaweewattana district of the BMA in January 2012 by the author.*

Other parties who gain from the current system are large private recycling shops at the perimeters of waste transit sites because they also run a lucrative business of lending money to trash collection workers who pay back their loans with materials recovered en route (DT1, Interview, 16 January 2012); and the private contractors who operate waste transit sites as they also run a business of charging scavengers fees upon entering the sites as well as purchasing retrieved recyclables from them. Further research will be needed to determine the influence that these parties have on the policymakers' decision to push for extensive source separation, which might threaten the livelihood or business as usual of the parties presently involved.

### **6.4.3 Regulation**

Regulations can be an important tool to incentivize source separation activities or to be a disincentive for non-participation. However, the BMA has not been using regulations to support recycling. As mentioned earlier in Section 2.5.3,

many countries where recycling is more successful all have laws in one form or another to regulate the public and/or the private sector. Nevertheless, regulations alone cannot guarantee success. For regulations to be an effective tool, a supportive system should also be in place. Unfortunately, such a condition is missing, as pointed out by an expert at the BMA who conceded that the unwillingness of the BMA to rely on regulations is partly due to the lack of a supportive system of recycling, i.e., it is no use enforcing a recycling law on the public when there is still no complete system to take care of sorted waste, both en route and at transit sites (BMA1, Interview, 10 February, 2012).

Another reason why regulations cannot be used effectively by the BMA is its lack of mandate in practice. Even though the Public Health Act of 1992 grants the BMA the authority to issue regulations concerning waste management, it is, in fact, the policy of the BMA *not* to issue any regulations on recycling (BMA4, Interview, 10 February 2012). The senior BMA officer stated that the reason is mainly because, in practice, the legal system is incomplete in the sense that the BMA has limited to no mandate when it comes to regulating the private sector.

“Even though the Public Health Act of 1992 gives local governments the mandate to issue law on recyclable waste management, no local authority has done so. One main reason is because, for such a law to be effective, it would have to involve enforcing the private sector [to take back emptied containers for example] -- something that is beyond the mandate of local authorities. As such, local authority like the BMA only devises policies on recycling; but its implementation and enforcement is its weakness”, (BMA4, Interview, 10 February 2012).

At this point, it is clear that regulations at the national level as well as a system that supports recycling are important in supporting recycling policies at the local BMA level. On top of that, collaboration from the private sector is also vital. The experience of the PCD in pushing for the packaging tax law in 2001 exemplifies how a law that was supposed to tax manufacturers for packaging materials used in

their products was blocked due to collective opposition from the manufacturers (Management and Legislation for Packaging Waste, 2004).

## 6.5 Summary

In answering the third research question, based on the summary of findings in Table 6.1, it can be concluded that for the key factors associated with the gated community as a stakeholder (i.e., social capital and convenience), findings from all gated communities interviewed point in the same direction as those from the 4 case studies: The two best-performing gated communities and the rest of the gated communities in Group A (the best-performing group) appear to possess similar success factors in terms of social capital and convenience; while the two worst-performing gated communities and many others in Group C (the worst-performing group) appear to be short on these two success factors, especially social capital since all communities that failed lack most aspects of social capital, with or without the convenience of having temporary storage. The aspect of economic status may also be significant as seems to be the case for the two case studies of Sin Sup and Laddawan, but further research would be needed to confirm this point in the general population that includes more gated communities especially those at the higher end comparable to Laddawan (Pinklao). The importance of other factors such as civic mindset, perception on recycling, and children cannot be inferred for the rest of the gated communities outside the four case studies because data gathered from one key informant per community is insufficient to qualitatively represent the view for the entire community for these aspects.

For aspects associated with private recycling agents, judging from Table 6.1, locating recycling agents to conduct recycling transaction with seems hardly a problem for gated communities throughout the research, since all but one of the 23 communities show that they have agents readily available to them. In terms of agents' reliability, Table 6.1 shows that the lack of reliability appears in some communities in both the successful and failed groups. As such, it may be inferred then that the lack of reliability may further hamper recycling efforts in communities where the social

capital and convenience factors are already lacking (Group C), while such a lack of reliability is outweighed by these other success factors when the latter exist (Group A). Another possible explanation is that lack of agents' reliability may also be the result of non-commitment on recycling from the part of gated communities. Either way, both can be the case.

In terms of the local authority, findings from the majority of gated communities also point in the same direction as the 4 case studies in that they all show uniform absence of the authority's roles in all gated communities regarding its involvement and regulations, as perceived by interviewees from all these communities. Findings from key informants at the BMA explain possible causes of such absence. One of them is the lack of commitment by policymakers on recycling, which is a result of multiple causes such as the constant change of leadership at the BMA, the lack of staff in the field, and the lack of public awareness. The second reason is the potential conflict of interest from different parties that currently gain from the informal system of recycling (although further research is needed). The third is the impracticality for the BMA to issue regulations on recycling due to the absence of a supportive system and the lack of real mandate in practice.

## CHAPTER VII

### CONCLUSION AND RECOMMENDATIONS

#### 7.1 Conclusion

Source separation and recycling is one of the important means to ensure that the increased material consumption that comes with economic growth does not compromise the sustainability of the environment, which is one of the three key components of sustainable development (Section 1.4). This thesis focuses on the recycling program in Bangkok's gated communities due to the abundance of such communities in Bangkok, the clustering of households within them, and their consuming-class residents. Such communities are also symbolic of the growing middle class that is the fruit of urbanization in rapidly industrializing cities of developing countries. Although there are differences in local context and culture, there are also similarities that can be drawn among these global cities, including in terms of: income level and its associated lifestyle and people's mindset; the economic environment and thus the way recycling is conducted mostly by the informal sector in many of these different countries; and the way policymakers deal with management of recyclable waste. As such, findings in the research can contribute to the body of knowledge that can be used to support recycling and sustainable development in Thailand, as well as that in mega cities of other comparable developing countries.

The research concentrates on three actors with stakes in community recycling, namely: the gated community itself; the private recycling agent which buys recyclables from the community; and the local authority in charge of waste management. Only the first two stakeholders were found to play an active role in the community recycling program, as residents of gated communities sort waste to be collected for sale later to private recycling agents (who, in turn, sell waste to bigger recycling shops or factories), thus allowing recycling activities to take place in the absence of any role played by the third stakeholder, the local authority.

In terms of the gated community itself, findings show that, social capital -- in the aspects of leadership, administrative/field staff, committee, volunteer, and networks -- plays the most crucial role in determining the outcome of recycling. The reason is because such social capital entails the necessary support and resources needed for a gated community to run a successful recycling project. The second-most important factor is convenience that facilitates recycling, especially in the form of a central temporary sheltered storage area where collected recyclables can be accumulated until the amount is big enough to make a sale, and, to a lesser extent, in the form of recycling bins for households. Besides these two factors, economic status shows a potential to play a role, especially at both ends of the spectrum as is the case for the smallest- and biggest-home-sized communities -- i.e., gated communities with low economic status may engage more successfully in recycling because of its monetary incentive, while those with high economic status do the opposite. Further research is needed, however, to confirm this finding about economic status among the general population by basing the research on a well-balanced mix of communities of different sizes.

In terms of the role of the private recycling agent, the recycling project of the gated communities mainly owes its existence to this second stakeholder as recycling agents buy and sell recyclables and allow such waste to be brought back into the production system. The agents' availability, therefore, is crucial to the success of the project. The reliability of the agents, on the other hand, seems to be a success factor but to a lesser extent than others, due likely to the fact that gated communities can switch to other agents when their agents are found to be unreliable.

In terms of the local authority which is the third stakeholder, the research has found that it has not played a role in supporting the informal recycling program in the gated communities studied. However, by pointing to the participation rates of recycling households that are stagnant over the years and to the fact that the majority of gated communities in Bangkok do not have a community-recycling program in place, the research suggests that there is a role that the local authority should play,

both to support the current form of informal recycling (e.g., by providing an environment conducive to such activities), and to be another active contributor to promoting the household recycling effort in general.

As such, the research then sought to determine possible factors that have been preventing local authorities like the BMA from contributing more to recycling programs. It identifies the first factor to be the lack of commitment from policymakers on recycling, which is caused by the constant change of leadership, the lack of staff in the field, and the lack of public awareness. The second factor is the potential conflict of interest on the part of different participants in the informal recycling system. The third factor is the impracticality of the BMA in issuing regulations to support source separation due to the absence of a supportive system and the lack of real mandate.

Overall, based on the above findings, the question to be raised then is of how successful recycling can be achieved and maintained in urban, middle-class communities in Bangkok where social capital is generally low due to limited interaction that residents in these communities have, while at the same time, public awareness is still low, the official channel to handle recyclables is still lacking, and regulations are still not effective.

## **7.2 Recommendations**

Based on challenges of the recycling effort as identified in the research, the thesis proposes the following recommendations.

### **7.2.1 Recommendations for Organizations like TIPMSE**

In terms of gated communities, TIPMSE should target key drivers for success, namely social capital, and convenience of having temporary storage, and potentially economic status. Depending on the organization's budget, one or more of the following can be done:

- Make sure to continuously contact the committee as well as administrative staff of gated communities in order to reach out to any new-coming team.



- Support materials for use as temporary sheltered storage, such as oversized containers and canvases.
- Devise different messages when approaching gated communities with different economic statuses.

#### 7.2.2 Recommendations for Gated Communities

- Continually promote the recycling project through existing channels such as community newsletters or bulletin boards, in order to improve awareness and the participation rate.
- Consider setting up volunteer groups to sustain the recycling project, despite the change of the committee.
- Consider investing in sheltered central storage.
- Consider allowing recycling agents to collect recyclables directly from in front of residents' homes, to relieve the workload of the administrative and field staff and enhance the chance that the project will succeed long-term.

#### 7.2.3 Recommendations for the Recycling Agents

The thesis findings show that there is a market for recycling agents to buy recyclables in bulk from gated communities. Agents that wish to conduct business with gated communities may benefit from recommendations as follows:

- Approach each gated community by reaching out to its committee (via its administrative office).
- Improve their own image, to obtain contracts with gated communities.
- Purchase recyclables from multiple sources in the vicinity, in order to ensure that the amount of recyclables is worth the transportation cost. This thus addresses the issue about agents not picking up recyclables per schedule.

#### 7.2.4 Recommendations for the BMA

The BMA should build upon the work of TIPMSE by being more hands on in encouraging households including but not limited to those in gated communities.

Since the BMA has considerably more budget than any non-governmental organizations, and, moreover, it is a permanent government body unlike non-governmental organizations which could be subject to budget cut by donors, its support is vital in making household recycling projects sustainable.

In terms of gated communities, potential things that the BMA could do to help promote recycling programs include:

- Reach out to community committees to promote recycling.
- Support materials for sheltered central storage.
- Consider tying waste fees<sup>23</sup> to trash amount to provide incentives for participation or disincentives<sup>24</sup> for non-participation (i.e., based on the polluters-pay principle), or both.

In terms of private sector, the BMA could support or encourage them as follows:

- Provide tax incentives for registered recycling agents.
- Support recycling agents in upgrading their images which will improve their chance of gaining access to conduct business inside gated communities.
- Seek collaboration from private sector. For example, encourage home builders to design gated communities that are green by constructing facilities that make household recycling convenient, such as setting aside sheltered areas as central depots for recyclables.

In terms of the BMA<sup>25</sup> itself, actions that the BMA could take to address the weaknesses identified in the research findings include:

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<sup>23</sup> Collection fee is limited to 40 Baht per capita per month. The fees collected cover only 3-10% of the operational costs of waste management (Muttamara et al., 2004).

<sup>24</sup> However this has to be weighed against the possible backlash from trash burning when fees are too high, especially when enforcement against trash burning is not effective.

<sup>25</sup> Unless otherwise specified, recommendation here could be done at both the Environmental Department level and the District Offices level. Details of responsibility at the Environmental Department and District Offices are in Literature Review's Section 2.5.

- Concerning disruption of recycling projects due to change of leadership, the BMA could institutionalize its commitment to recycling by setting up a position within the BMA's Environmental Department specifically to promote recycling. The position will oversee the implementation of the BMA's recycling policy, and systematically evaluate such implementation. That way, recycling programs would be insulated from any disruption that may be caused by the change of leadership, allowing them to be carried on and evaluated (thus improved) on an ongoing basis.
- Regarding the lack of staff in the field, since part of the reason of such overstretched crews is because they engage in en route sorting, first of all, the policymakers at the BMA must be clear on its position regarding such activities. Studies should be conducted to compare the benefits of en route sorting against the cost of budget lost due to prolonged collection time as well as the ensuing problems of trash not being collected completely. If it is found that en route sorting is more beneficial, clear protocols and guidelines should be provided both to the public as well as to the collection crews of the 50 districts in terms of disposal and handling of recyclables. Only by undertaking such research can the BMA decide on whether or not to formally support en route sorting. The decision would then inform the BMA on its budget allocation for the trash collection task, and the procurement of equipment suitable for the task. Furthermore, formal evaluation can then be performed on the effectiveness of such en route sorting if the practice is integrated into the collection system. The BMA should also research the current supplementary income earned by the trash collection crews and determine the necessary level of compensation.
- In terms of the lack of public awareness, the BMA could address this by pointing out the monetary incentive for recycling, in addition to the environmental benefit, in order to highlight the market-based nature of the current system. The BMA's official website should also provide information on waste-sorting instructions, drop-off locations, contact information of registered recycling agents in the city's neighborhoods, recycling FAQs, etc.

- In terms of regulations, the BMA could issue a combination of local regulations together with other tools and policy mix, drawing on the experience of many other countries as summarized in the Literature Review's Section 2.5.3.

#### 7.2.5 Recommendation for National-Level Policymakers

For solid waste management to be effective, both local and national governments must have coherent policies to support the initiative. Moreover, many issues are best when dealt with at the national level. The existence of support in the national government will enable the BMA's initiatives to better achieve their potential. Summarized below are some actions that the national government could undertake:

- Raise public awareness continually and strategically, potentially utilizing national media.
- Consider subsidizing the prices of certain recyclable materials that are currently not being significantly sorted out through recycling, for example, plastic bags (due to its low price). The cost of subsidizing should be weighed against the cost of not doing so, by also factoring in the negative externalities of the disposal of the extra waste generated when the subsidy is not in place.
- Issue laws to regulate the private sector, for example passing laws banning the use of certain types of non-recyclable materials (by comparing the true cost of managing such waste and the cost of alternative options), laws requiring producers to take back containers, etc.
- Provide tax incentives for businesses that engage in recycling
- Set industry standards, for example, of packaging to be made from recycled content
- Promote investments in technology for use in plants that produce materials or products from recyclables

### 7.3 Further Research

This thesis has mapped out a general framework of the factors and stakeholders of Bangkok gated-communities' recycling program, although, given the scope of the thesis, in depth case studies were only conducted for the most and least successful gated communities. However, since the research relied mainly on semi-structured interviews, further in-depth research that are ethnographic, would likely be needed in order to concentrate on any particular factor or element identified in this thesis. As such, this thesis may serve as a springboard for a series of future research, in order to better inform organizations working to promote recycling and policymakers alike. Key areas for further research include:

- The influence of economic status on recycling behavior of households
- The impact of source separation on the economic livelihood of trash collectors and scavengers
- The influence of contracts between the BMA and private operators on recycling policies at the BMA
- The costs and benefits of en route separation by the BMA trash collectors

Besides the above research in the context of Bangkok, further research could also be conducted in other global megacities by extrapolating from the thesis's model and findings, in order to shed light on recycling and waste management in these cities.

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## **APPENDICES**

## APPENDIX A

### INTERVIEWEE PROFILE

**Table A1:** Summary of Gated Communities and Their Key Informants

<b>Key Informant ID</b>	<b>Title</b>	<b>Gated Community</b>	<b>Location</b>
MB1	Committee resident	Baan Fah Green	Rangsit, Pathumthani
MB2	Volunteer resident	Bali Hii (Case Study #3)	Rangsit, Pathumthani
MB3	Ex-committee resident	Chaiyapruek Baangbuathong	Bangbuathong, Nonthaburi
MB4	Admin person	Chaiyapruek Ramindra	Ramindra, Bangkok
MB5	Committee resident & admin person	Chaiyapruek Rungsit Klong 2	Rangsit, Pathumthani
MB6	Admin person	Chaiyapruek Suwinthawong	Suwinthawong, Bangkok
MB7	Admin person	Chollada Bangbuathong	Bangbuathong, Nonthaburi
MB8	Resident & admin person	Chuan Chuen Resident	Ramindra, Bangkok
MB9	Resident & admin person	Discovery Balika	Rangsit, Pathumthani
MB10	Resident & admin person	Floraville	Suwinthawong, Bangkok

<b>Key Informant ID</b>	<b>Title</b>	<b>Gated Community</b>	<b>Location</b>
MB11	Ex-committee resident	Greenville	Talingchun, Bangkok
MB12	Recycling volunteer resident	Kunalai	Bangbuathong, Nonthaburi
MB13	Ex-committee-chair resident	Laddawan Pinklao (Case Study #4)	Bangplud, Bangkok
MB14	Ex-committee-chair resident	Maeg Mai (Case Study #2)	Sai Mai, Bangkok
MB15	Ex-committee resident	Munthana Talingchun	Suwinthawong, Bangkok
MB16	Admin person	Nakarin Garden	Suwinthawong, Bangkok
MB17	Ex-committee resident	Nunthawan Talingchun	Talingchun, Bangkok
MB18	Ex-committee resident	Private Ramindra	Ramindra, Bangkok
MB19	Admin person	Prueksa Ville Rattanathibet	Bangbuathong, Nonthaburi
MB20	Admin person	See walee	Rangsit, Pathumthani
MB21	Committee resident	Sin Sup (Case Study #1)	Rangsit, Pathumthani
MB22	Committee resident	Suchaya	Rangsit, Pathumthani
MB23	Resident & admin person	Summagorn	Rangsit, Pathumthani

Note: The table contains a list of the 23 gated communities, their locations, and key informants interviewed in Stage 1 of the research method process (for grouping of gated communities and selection of case studies), in alphabetical order.

**Table A2:** Community Interviewees in Case Studies

<b>Case Study (Community)</b>	<b>Interviewee Code Name</b>	<b>Role</b>	<b>Type</b>
Maeg Mai	CS_MM1	Ex-committee resident (active leader)	Key informant
	CS_MM2	Volunteer resident	Key informant
	CS_MM3	Admin person	Key informant
	CS_MM4	Street sweeper	Key informant
	CS_MM5	Resident (recycling)	Random interviewee
	CS_MM6	Resident (recycling)	Random interviewee
	CS_MM7	Resident (not recycling)	Random interviewee
	CS_MM8	Resident (not recycling)	Random interviewee
Sin Sup	CS_SS1	Committee resident (active leader)	Key informant
	CS_SS2	Volunteer resident & recycling agent	Key informant
	CS_SS3	Volunteer resident (food vendor)	Key informant
	CS_SS4	Resident (recycling)	Random interviewee
	CS_SS5	Volunteer resident (school teacher)	Random interviewee
	CS_SS6	Volunteer resident	Random interviewee
	CS_SS7	Resident (recycling)	Random interviewee
	CS_SS8	Resident (recycling)	Random interviewee
	CS_SS9	Resident (not recycling)	Random interviewee
	CS_SS10	Resident (not recycling)	Random interviewee



<b>Case Study (Community)</b>	<b>Interviewee Code Name</b>	<b>Role</b>	<b>Type</b>
Bali Hii	CS_BH1	Volunteer resident (potential active leader)	Key informant
	CS_BH2	Volunteer resident (potential active leader)	Key informant
	CS_BH3	Resident & admin (past and present)	Key informant
	CS_BH5	Resident	Random interviewee
	CS_BH6	Current committee	Random interviewee
	CS_BH7	Resident	Random interviewee
	CS_BH8	Resident	Random interviewee
	CS_BH9	Resident	Random interviewee
	CS_BH11	Resident	Random interviewee
	CS_BH12	Resident	Random interviewee
	CS_BH13	Resident	Random interviewee
	CS_BH14	Resident	Random interviewee
Laddawan Pinklao	CS_LP1	Ex-committee resident	Key informant
	CS_LP2	Admin person	Key informant

Note: This table lists all interviewees who are members of the 4 gated communities in case studies

**Table A3: Non-Community Interviewees**

<b>Interviewee ID</b>	<b>Informant Type</b>	<b>Interview Method (semi-structured)</b>	<b>Organization</b>	<b>Position</b>
TIP1	Key informant	Face-to-face and phone	TIPMSE	Project Manager
TIP2	Key informant	Face-to-face	TIPMSE	Project Manager
BMA1	Key informant	Face-to-face	BMA -- Policy & Planning Unit (PP), Environmental Dept.	Head of public participation affairs
BMA2	Key informant	Face-to-face	BMA -- Policy & Planning Unit (PP), Environmental Dept.	Officer in charge of recycling policy and planning
BMA3	Key informant	Face-to-face	BMA -- Policy & Planning Unit (PP), Environmental Dept.	
BMA4	Key informant	Face-to-face	BMA -- Solid, Hazardous and Night-Soil Waste Unit (SHNW), Environmental Dept.	High level officer
BMA5	Key informant	Face-to-face and phone	BMA -- Solid, Hazardous and Night-Soil Waste Unit (SHNW), Environmental Dept.	Employee
DT1	Key informant	Face-to-face and phone	BMA's Talingchun District -- Public Cleaning and Public Parks Unit (PCPP)	Senior employee
DT2	Key informant	Face-to-face and phone	BMA's Talingchun District -- Public Cleaning and Public Parks Unit (PCPP)	Deputy Head of Unit
DT3	Key informant	Phone	BMA's Sai Mai District -- Public Cleaning and Public Parks Unit (PCPP)	Head of Unit

<b>Interviewee ID</b>	<b>Informant Type</b>	<b>Interview Method (semi-structured)</b>	<b>Organization</b>	<b>Position</b>
Muni1	Key informant	Phone	Bueng Yi Tho Municipality's Public Health and Environmental Unit (PHE)	Senior Officer
Muni2	Key informant	Phone	Bueng Yi Tho Municipality's Public Health and Environmental Unit (PHE)	Officer
Muni3	Key informant	Phone	Laad Swai Municipality's Public Health and Environmental Unit (PHE)	Senior Officer
Muni4	Key informant	Phone	Laad Swai Municipality's Public Health and Environmental Unit (PHE)	Officer
Muni5	Key informant	Face-to-face and phone	Pakkred Municipality's Public Health and Environmental Unit (PHE)	Officer
PCD1	Key informant	Face-to-face interview	Pollution Control Department (PCD)	Officer
PCD2	Key informant	Phone interview	Pollution Control Department (PCD)	Officer
PR1	Key informant	Face-to-face	The private recycling shop used by Maeg Mai	Recyclables collector
PR2	Key informant	Face-to-face & phone	Wong Panit Ladkrabung -- a private recycling firm	Manager

Note: This table lists key informants who are not members of gated communities

## APPENDIX B

### SAMPLE QUESTIONS

Below are sample questions relating to factors identified in the Literature Review

#### **1. Factors Belonging to Stakeholder – The Gated Community**

The following questions are asked with members of gated communities. On top of these, the interviewees will also be asked about main complaints people have on the recycling projects in the communities, things they think help make recycling works there.

*Factor: Social Capital*

- Identify different types of social capital -- Who (and what types of members) in the community plays (and/or played) an important role in its recycling project? How? Which is the most important?

*Factor: Convenience*

- Is the current system conducive for them to sort and recycle trash? Why (not) and how?
- If things are arranged or provided for, to make it easier for residents to sort and recycle trash, would they sort it then? And what should the new arrangements be?

*Factor: Economic Status*

- No question. It will be based on housing price.

*Factor: Civic Mindset on Waste Issue*

- What is their role on waste? Whose responsibility is it?

*Factor: Perception on recycling*

- What do they think of first thing about recycling?
- Positive and/or negative view

*Factor: Children*

- Has any of their children ever come home and ask the adults to recycle? Have they been thought at school and want to do it at home?

## **2. Factors Belonging to Stakeholder – The Private Recycling Agent**

### *Factor: Availability*

- Ask gated community:
  - What has been their experience with private agents?
- Ask agent:
  - Are there any other shops nearby?

### *Factor: Reliability*

- Ask gated community:
  - Do recyclable pickup trucks come on schedule?
  - Comment on service
- Ask agent:
  - What are the challenges of picking up on time, of buying from gated communities in general?

## **3. Factors Belonging to Stakeholder -- The Local Authority**

### *Factor: Commitment from Policymakers on Recycling*

- Ask local authority:
  - What is the local authority's policies and practice regarding recycling (in general and in gated communities)? Comment why it has or has not worked?
  - Any comment regarding gated communities practice recycling?
- Ask gated community:
  - Comment on local authority's policies and practice that affect the recycling project of the community.

### *Factor: Conflict of Interest by the Collection Department or its Personnel*

- Ask gated community:
  - Have they experience such a problem so far?
- Ask BMA:
  - Cross check findings from gated community
  - Comment about the issue

### *Factor: Laws and Enforcement*

- Ask gated community:

- If law is in place, will they be more inclined to sort waste? Any other thought?
- Ask local authority:
  - Detail and comment on current regulations (or the lack thereof), and whether it affects recycling?
  - Their opinion for or against regulations, and why?

APPENDIX C

DETAILED DESCRIPTIONS OF FINDINGS

Table C1: Detailed Descriptions of Findings from Gated Communities

No.	Gated Community	Group	Rcyclables Collection Method	What helps?	What hurts?
1	Maeg Mai (Case Study#1)	A	Case study -- see Chapter 4	Case study -- see Chapter 4	Case study -- see Chapter 4
2	Sin Sup (Case Study#2)	A	Case study -- see Chapter 4	Case study -- see Chapter 4	Case study -- see Chapter 4
3	Chuan Chuen Resident	A	<ul style="list-style-type: none"> <li>- Any resident can recycle. No need to sign up. They can just bring trash to drop it at central location. The central location is located under a shack, with one large plastic bin for paper, and 3 aluminum net of 1x1m each for other materials (although they're being worn out pretty quickly plus they're quite small now). Residents usually leave black trash bags there under this shack. Once quantity is big enough, the resident admin manager calls recycling agent to come in to buy recyclables. Proceeds go to central community fund.</li> <li>- Recently, new scheme emerges. Residents can now call the resident admin manager when they have recyclables and do not wish to walk to the drop-off location. He'll then ask his gardener to collect them. His gardener has the incentive to because he is now an authorized recycling agent (home business of gardener's son in law).</li> <li>- Some 10 residents sell trash themselves outside of community. (This community doesn't allow agents to go in.)</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Leadership -- The resident admin manager initiated recycling in the community. He reached out to TIPMSE himself. He is very active and will continue to be because he's into getting recycling proceeds to buy common materials for his own son and other kids in the community. He keeps promoting recycling during fairs and annual gatherings that recycling brings in cash for central fund to provide for certain common equipments or food/snacks for kids inside his community. He likes to talk to his residents and always tries to organize fairs so that residents have closer relationship. He likes using "soft" approach and be flexible on regulations by building relationship with his residents.</li> <li>- Admin -- enthusiastic because of incentive from recycling</li> <li>- Committee -- approves recycling</li> <li>- Storage -- Central drop-off location under a shed acts as storage</li> </ul>	<p><b>Opinion:</b></p> <p>Interviewee thinks that residents need to have more green consciousness</p>
4	Prueksa Ville Rattanathibet	A	<ul style="list-style-type: none"> <li>- Residents leave TIPMSE's sorting bins in front of homes once a week. Committee chair and 6-7 volunteer residents go around all homes with a push cart to collect trash. Trash is then left in central storage area right outside community (donated to the community by the local municipality who cares about votes). Then older female volunteer residents sort them before calling recycling agent to come in to buy. No admin office yet in this community; only employees of builder company.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Leadership -- committee chair is active on recycling.</li> <li>- Community -- Strong community -- although it's a new community, but committee chair has very good interpersonal skills and leadership that help get residents to know one another and wanting to work together.</li> <li>- Admin -- no need because residents assuming the admin's job.</li> <li>- Volunteer -- Residents formed a volunteer group to help committee chair on recycling.</li> <li>- Networks -- Collaboration from authority (Or Bor Tor)</li> <li>- Availability of central storage for trash</li> </ul>	<p><b>Opinion:</b></p> <p>Lack of understanding by residents regarding value of trash. They think trash is dirty and worthless.</p>

No.	Gated Community	Group	Recyclables Collection Method	What helps?	What hurts?
5	Summagorn	A	<ul style="list-style-type: none"> <li>- Two schemes. Scheme #1: Weekend Recycling Market (talaad nud recycle): All proceeds go to residents. TIPMSE contacts a team to go in to buy recyclables at a central location. Scheme #2: Residents contact admin office to send workers to collect recyclables. Proceeds go to central community fund.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Leader: The admin manager, who is himself a resident, actively promotes and facilitates recycling.</li> <li>- Admin: Manager is very active. Admin team (10 workers) also helps him on recycling.</li> <li>- Committee -- It is implied committee supports activities of admin staff on recycling</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Recycling agents not coming in on time. It is bad to let residents waiting for 200-300 baht trash.</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Not enough PR resulting in less HHs than it should. He thinks the gov should do better PR and do it continuously.</li> </ul>
6	Floraville	A	<ul style="list-style-type: none"> <li>- Residents call admin office for recyclables collection whenever they're ready. Admin field workers collect trash and bring to central storage under roof for further sorting in detail. Then call recycling agent to come in to buy.</li> <li>- 2,000 - 4,000 baht/month</li> </ul>	<p><b>Experiecnce:</b></p> <ul style="list-style-type: none"> <li>'- The chair person , a committee members , and resident admin persons are in on it. The committee mecmbler helped initiated the project. The chair also has buy in.</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Existing overflowing trash problem helps give a reason for residents to reduce waste by recycling -- This is tied to economic status.</li> <li>- She thinks central recycling drop-off location would help.</li> <li>- She thinks continuation helps.</li> <li>- She thinks monetary incentive helps.</li> <li>- She thinks recycling is mostly done by elderly and maids.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Lots of work for administrative office.</li> </ul>
7	Chaiyapruok Suwinthawong	A	<ul style="list-style-type: none"> <li>- Residents leave recyclables in front of homes (using bins and bags). community's worker collects every Saturday, using recycling agent's truck. Recycling agent weighs and buys at office. 2,000 baht/month goes to central fund.</li> <li>- No problem in rainy season. No obstacle.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Committee is still unchanged, especially the one who pushes for recycling.</li> <li>- Admin has enough resource to work on recycling.</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Monetary incentive -- proceeds go to central fund. It's something concrete for residents to see.</li> </ul>	
8	Nakarin Garden	A	<ul style="list-style-type: none"> <li>- Twice a month, admin worker goes with a recycling agent to collect recyclables from front of homes. Then go to weigh at central area.</li> <li>- Residents collaborate well. No problem from any actors.</li> <li>- There's also a central drop-off location underneath the niti building. But people don't use it much.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>'- Collaboration from residents. This may be attribute to the fact that it's an old community where residents know one another well (strong community) and some hold activities together like walking, exercising.</li> <li>- At first, committee set up the recycling system. Now it runs by itself.</li> <li>- Admin office do their PR job reminding about pickup dates.</li> <li>- No comment for other actors.</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Admin office scores the community 8 out of 10 for success of recycling in this community.</li> <li>- In the past, there was trash overflow problem. Now better due to recycling.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>Rain -- less amount collected during rainy season because residents can't put out trash bins. (This should not be a determining factor since rain affects every community the same way.)</li> </ul>



No.	Gated Community	Group	Recyclables Collection Method	What helps?	What hurts?
9	Chaiyapruke Klong 2	A	<p>- Residents taking out recyclables in front of home twice a month. Saleng going in front of homes to collect trash then weigh at central location. 500-600 baht per month.</p> <p>- Interviewee said TIPMSE used to provide central sorting bins, but got old. At the time, residents took care to sort before dumping.</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Committee: Current committee supports recycling.</li> <li>- Admin: Current admin facilitates recycling</li> <li>- Storage: No need for central storage area. Trash is collected and bought on the same day by saleng.</li> </ul> <p><b>Interviewee's Opinion:</b></p> <p>The long term sustainability of the project depends on if committees want in on it. She doesn't see how a non-committee person can take the leading role on recycling, since it involves getting collaboration from administrative office (to coordinate trash collection) and central fund.</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Convenience (B): TIPMSE's bins are too small. It hurts the effort, especially during rainy season (because when bins are full, lid cannot be closed).</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Change of committee</li> <li>- Lack of resource (e.g., PR, small sorting bins, central sorting bins)</li> </ul>
10	Munthana Talingchun	B	<p>Every Sunday, residents would leave recyclables in front of home. About 3 gardeners would collect them and put it in a central resting place. (Residents didn't have to enroll.) Then record would be faxed to TIPMSE, and proceeds (3,000 baht/month in the past, now about 1,500-2,000 after flood) went to central fund. System is stable. The previous admin manager (&amp; resident) worked hard to set up the system at much support by the chair who is still a current chair. Now the new admin manager (&amp; resident) took over. He would continue the program if there are still residents bringing out recyclables. But there is no more PR because he thinks the system is in place.</p> <p>- There's a also a central drop-off location for recycling but nobody goes there, even if it's conveniently located at the entrance.</p>	<p><b>Experience:</b></p> <p>Committee Chair -- was totally in on it. He still supports it now but system is already in place so not much to do.</p> <p>Admin -- so far they are still willing to work on it although the current manager said that staff had to be pulled away from regular maintenance work. Nevertheless the staff must follow the directive of the committee. And he said as long as there are enough recyclables brought out by residents, there will still be collection.</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Sometimes residents dump non-recyclable trash together with recyclables, adding to the workload of the staff who needs to sort them further.</li> <li>- Rain was the problem.</li> <li>- Bins too small and no lids to protect from rain.</li> <li>- Some residents would not recycle if they're not provided black trash bags (bins are too small). Basically, they just need hand holding. If it's just slightly inconvenient, then they won't do it.</li> <li>- This community went through several recycling agents. Many of them stopped coming because trash amount is too little, not worth the trip. Now they seem to be able to get a new agent. Fortunately, agents are available near the community so never a problem.</li> <li>- There's a possible threat of no buy-ins from residents if they see that the gardener didn't do a good job tidying things up.</li> </ul>
11	Discovery Balika	B	<p>- In the past, every Sunday residents brought recyclable in front of home. Sweeper collected it and recorded the house numbers. (Sweeper didn't get paid more.) Then admin needed to sort further in detail (e.g., paper store under shelter, while bottles store in plastic bags. Used to make 1,000-1,300 baht/month. Now it dropped. New admin didn't want to do it.</p> <p>- The previous resident admin manager and his assistant first learned about recycling from Bali Hii so he initiated contact with TIPMSE's K. Onanong.</p>	<p><b>Past Experience:</b></p> <ul style="list-style-type: none"> <li>- Leader &amp; Admin -- In the past there was a resident admin manager who led the effort with his assistant. They were very dedicated. The admin manager also had very good relationship with residents. They liked him cuz he's very helpful. They called to consult him on problems. His effort led Balika to win TIPMSE award in 2010 among 20 communities judging from participation by residents, active admin effective PR, and support from builder company. But now it dropped because the new admin is not as active.</li> <li>- Incentive like EM that K. Anawat and his assistant made to give to residents when they brought recyclables. (It is also for sale to visitors of community.)</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Admin -- The new admin office does not facilitate recycling.</li> <li>- Leader -- K. Anawat no longer lead the effort</li> <li>- Committee -- recycling is not priority</li> <li>- Volunteer -- none</li> <li>- Networks -- none</li> </ul>

No.	Gated Community	Group	Recyclables Collection Method	What helps?	What hurts?
12	Greenville	B	<p>Every other Sunday at 8 am, residents will bring sorted trash in front of homes. Uncle Kumjun will drive his pickup truck from house to house to collect trash. (He's the sweeper in the community and wants to take up this as the sideline to make extra income.) Then he'll accumulate all trash at a central roofed location where he'll sort all trash before calling a recycling agent nearby to come to buy trash usually on the following day. Half of the proceeds go to the uncle, the other half goes to central community fund.</p> <p>- community gets about 1,000 baht per month (net of proceeds to Uncle Kum Jun).</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Committee -- First it was K. Kanjana who's the committee who headed the recycling initiative. Then she was busy so K. Kullaya took over. But she does it alone without help from others.</li> <li>- Admin -- Uncle Kumjun acts as an active admin field worker</li> <li>- Storage -- These is a location under the roof for Uncle Kum Jun to sort trash.</li> </ul>	<p><b>Experience:</b></p> <p>'Agent's Reliability -- Many residents complained lately that Uncle Kumjun didn't come to collect recyclables as promised.</p> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- New committee's ommitment. If her term as committee mecommunityer expires, she won't be leading the recycling project. So it's all up to the new committee if they're into it and if they have time (cuz it involved going to meetings with TIPMSE).</li> <li>- Residents aren't aware. Residents have no time.</li> </ul>
13	Baan Fah Green	B	<p>Collect twice/month. Announcing dates in news letters. Residents placing TIPMSE's bins in front of homes. Bins quite too small now. Got about 1,000 baht per month. Committee members drive own light trucks going around community with 1-2 gardeners. Agent comes in to buy trash. (Interviewee would call agent twice to confirm date and make sure they're coming.) Proceeds go to central fund.</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Leader -- The interviewee is a committee member who leads the recycling efforts. She goes to collect recyclables with help from some other people. She would like to make liquid fertilizer and make recycling works like in Sin Sup.</li> <li>- Volunteer -- the leader has 2-3 residents/friends who help her with the recycling project. That is why the project is still continued. (But she's now having an issue with the committee chair. If she stops, then the project will most likely to discontinued.)</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Admin -- Admin office (builder's employee) doesn't help at all with PR or with recyclables collection.</li> <li>- Committee -- The leader is starting to have issues with the committee chairperson. In the end, she is not sure if the committee will support recycling is she leaves the committee.</li> <li>- Storage -- Lack of central storage, especially important in rainy season.</li> </ul>
14	Suchaya	B	<ol style="list-style-type: none"> <li>(TIPMSE's program) Residents get 2 sorting bins. Every Sunday 9am, external recycling agent will come in front of homes that join (has stickers in front of homes) to collect &amp; weigh recyclables. Money goes to central fund to buy equipments (so residents can rent with cheap rate). She gives small gifts to mecommunityer residents on new years</li> <li>community also allows an external recycling agent to go in to buy trash from residents in front of their homes every Saturday (the agent pays 500 baht a month entrance fee). Usually it's the old &amp; frail residents.</li> <li>Some residents give to sweepers and trash workers</li> </ol> <p>- No central drop-off locations</p>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Leader &amp; committee -- Interviewee is the resident/committee who heads recycling efforts alone. She knows about recycling because she used to open a recycling shop in her hometown. She said she'll continue to work on recycling project in her community even after she's not committee.</li> <li>- She is for recycling and she wants to help after she gets out of being committee, so the effort can continue. However, she's not as active as Sin Sup's leader in coming up with games and prizes to get more people to join. Therefore, even if she thinks that residents in her community are similar to Sin Sup across the street, the outcome of recycling in her community is totally different than at Sin Sup.</li> <li>- Admin -- this community has no admin. Admin function is assumed by recycling agent and the active leader.</li> <li>- There are recycling agents located close by.</li> </ul>	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>- Committee -- Residents are not trustful of committee because they think first set of committee stole some money from central fund. (This is equivalent to unsupportive committee.)</li> </ul> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Residents don't talk to one another, she thinks leading to recycling less. E.g., phase 1 &amp; 2 are like that, while phase 3 residents have closer relationship so recycle more because of word of mouth.</li> <li>- She said she did everything to get people to join more, but the problem is that people don't care about recycling. She tried everything -- posters, voice over wire, knocking on doors, etc. But residents are not that receptive.</li> </ul>
15	Kunalai	C	<ul style="list-style-type: none"> <li>- Residents leave bins in front of homes on Saturday. Sweeper pick trash up (hired for 40 baht only!). Trash is accumulated at one location. When it reaches a certain amount, Uncle Duang would take them out for sale. Got about 1,000 baht/mo.</li> <li>- Sometimes, residents call Uncle Duang to pick it up.</li> <li>- Generally, salengs are not allowed in but there are many recycling stores nearby.</li> </ul>	-	<p><b>Experience:</b></p> <ul style="list-style-type: none"> <li>Admin and field staff -- no field staff to work on recycling because many have left since the 2011 flood.</li> <li>Committee -- Interviewee said committee kept changing so the recycling project never took off.</li> <li>Leader -- not so strong</li> </ul>

No.	Gated Community	Group	Recyclables Collection Method	What helps?	What hurts?
16	Chollada Baangbuathong	C	There were 3 drop-off centers with separate baskets for different types of trash. Residents took recyclables to dump at one of these centers.	-	<b>Experience:</b> - Change of admin staff so the new staff doesn't continue with the effort; - Not convenient (people lazy to go to the drop off points) because there is no pick up in front of home - No strong leader, no volunteer, committee does not see recycling as priority.
17	Seewalee	C	Recently dropped out of program. In the past when it held the program, once a month, external recycling agent would go in to collect trash in front of registered homes. Admin office would send one worker to accompany the recycling truck until it collected all recyclables and went to its shop for weighing. Proceeds went to central fund. Admin would post notice for recycling when the day approaches.  - community allows saleng to go in. Also in front of community there's saleng. - System is already stable. Committee doesn't have to get involved.	<b>Interviewee's Opinion:</b> - Admin -- cooperative	<b>Experience:</b> Complaints from residents made the committee to decide to cease the project.  <b>Interviewee's Opinion:</b> - Residents aren't aware. Residents have no time.
18	Nunthawan Talingchun	C	- In the past it was hand holding. Talingchun district went to pickup recyclables, took them to a transit location at the district, sold them when the amount was big, then gave proceeds back to community. The community did not have to pitch in. It was not sustainable. - Currently residents (about 25 of them) call agents to go inside the community to conduct transaction directly with them.	<b>Past Experience:</b> - There was one ex-committee member who was green conscious and had civic mindset to do good things for the community and the environment. She pushed for the project. - Admin office manager at community was willing to help.  <b>Interviewee's Opinion:</b> - Central drop-off location might have helped.	<b>Experience:</b> - Leader -- Currently no leader. Project is not sustainable when there's no resident(s) taking charge. - Committee -- current one not adamant about recycling. - Agent's reliability -- trash collection not prompt.
19	Chaiyapruke Ramindra	C	- When first started in 2552, 100 households joined. The community let recycling agent come in to pick up recyclables. However, in less than a year, it flopped because residents didn't collaborate, only giving unsellable junk. So recycling agent refused to go in. The staff workers needed to collect recyclables from house to house on bike. But since these are junks, not much value. Eventually, the project was dropped. Then residents requested an agent to go in so they can sell trash -- once a month the admin office allows one agent to go in. Of all the 795 HHs, about 5% sell trash now to this agent. Mostly are maids. The informant thinks residents started selling because they learned that trash had value. So they dropped out of the program and sold for own proceeds instead. Also, since the new committee is not hands on with the project, no one pushed for the collective system. - There's a temporary storage with canvas to protect from rain.	<b>Past Experience:</b> In the beginning there was one resident who pushed for the project. Now no more.  <b>Interviewee's Opinion:</b> - Flexibility in allowing in agent - PR by admin -- announcing pickup dates in advance - econ incentive	<b>Experience:</b> Committee -- With the new committee, no one paid attention much to continuing the recycling project. Apparently other social capital factors are also lacking.  <b>Interviewee's Opinion:</b> - She thinks the richer the residents, the less civic minded they are. Residents of her community just doesn't care.

No.	Gated Community	Group	Recyclables Collection Method	What helps?	What hurts?
20	Chaiyapruek Baangbuathong	C	First there was central dumping location for recyclables. But not many people used it. So the committee changed it to collecting recyclables in front of homes. Residents liked it but the system ran into problems of (1) too much work for the staff, (2) recycling agent failing to come on time -- so the community kept changing agents and pausing in order to start all over again.	<p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- The informant thinks if proceeds go individual residents, then they'll have more incentive to recycle.</li> <li>- Committee must want in on recycling. (Non-committee residents cannot lead the effort without buy in from committee.)</li> <li>- PR must be good. She thinks her residents would do it if good PR and project managed well. This is linked to admin staff.</li> </ul>	<p><b>Experience:</b></p> <p>Leader &amp; Committee -- She pushed for the recycling project when she was on the committee. After her term ended, the new committee didn't want to continue. (Lack of continuation of recycling project.)</p> <p>Agent -- Recycling agent failed to come on time. So residents were discouraged to store trash for sale. Also area is too big (400 rals) so agents did not want to come in (i.e., unavailability of agents).</p> <p><b>Interviewee's Opinion:</b></p> <ul style="list-style-type: none"> <li>- Weak community in her community. People don't know one another, don't share info (so lack of word of mouth). But this is same in other communities as well. Partly good admin can help with effective PR.</li> </ul>
21	Private Ramindra	C	The chairman at the time (he lasted for 4 months) wanted to get the field staff to pick up recyclables whenever residents call. He also set up a temporary sheltered storage and the rest of the system. But since he quitted and no one took over, the administrative office has not implemented the project. When there's no leader, then nobody works on the field to make things happen.	<p><b>Interviewee's Opinion:</b></p> <p>Most important is an active leader whom people have faith on. Other thing else is possible, e.g., when there's a leader, administrative staff must heed the demand.</p>	<p><b>Experience:</b></p> <p>Leadership -- The ex-chairman of the committee stopped leading the recycling effort (because he was discouraged by a group of critical residents).</p> <p>Committee -- The new set of committee does not have recycling on the agenda, according to an admin person.</p> <p>Admin staff -- no committee buy in, so no buy in from admin staff either.</p> <p><b>Interviewee's Opinion:</b></p> <p>A group of residents who keep giving unconstructive criticism.</p>
22	Discovery Bali Hii (Case Study#3)	C	Case study -- see Chapter 5	Case study -- see Chapter 5	Case study -- see Chapter 5
23	Laddawan Pinklao (Case Study#4)	C	Case study -- see Chapter 5	Case study -- see Chapter 5	Case study -- see Chapter 5

## **BIOGRAPHY**

Patra Jirawisan is from Bangkok, Thailand. She is currently a Master's candidate in International Development Studies, Faculty of Political Science of Chulalongkorn University in the academic year 2012. She held a Bachelor's degree from the Faculty of Commerce and Accountancy from Chulalongkorn University in 1992 and a Master's degree in Business Administration from the University of Colorado in Boulder in 1997. She worked for Merrill Lynch in the U.S. for 6 years before moving her family back to Thailand. Her areas of interest are in environmental sustainability, human rights, and development in Thailand.