FACTORS INFLUENCING THE PRACTICE OF HOUSEHOLD WASTE MANAGEMENT AMONG MYANMAR MIGRANTS IN MUANG DISTRICT, RANONG PROVINCE, THAILAND

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ปัจจัยที่มีอิทธิพลต่อการจัดการขยะในครัวเรือนของผู้อพยพชาวพม่าในอำเภอเมือง จังหวัดระนอง ประเทศไทย

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ขี อิน เนียง : ปัจจัยที่มีอิทธิพลต่อการจัดการขยะในครัวเรือน ของผู้อพยพชาวพม่าในอำเภอเมือง จังหวัดระนอง ประเทศไทย (FACTORS INFLUENCING THE PRACTICE OF HOUSEHOLD WASTE MANAGEMENT AMONG MYANMAR MIGRANTS IN MUANG DISTRICT, RANONG PROVINCE, THAILAND) อ.ที่ปรึกษาวิทยานิพนธ์หลัก: ผศ.ดร.รัตนา สำโรงทอง, 80 หน้า

การศึกษาภาคตัดขวาง โดยใช้การเก็บข้อมูลจากแบบสอบถามกับผู้อพยพชาวพม่า อายุระหว่าง 18-65 ปี ใน อำเภอ เมือง จังหวัดระนอง ประเทศไทย วัตถุประสงค์ของการศึกษาเพื่อ 1) ประเมินความรู้ ทัศนคติ และพฤติกรรมในการจัดการขยะในครัวเรือน 2) ศึกษาปัจจัยที่มีผลต่อพฤติกรรมการจัดการขยะในครัวเรือน ของผู้อพยพชาวพม่าที่พำนักอยู่ในพื้นที่ศึกษา จำนวน 388 คน ระหว่างเดือนกุมภาพันธ์ 2552

ประชากรที่ศึกษา เป็นเพศหญิงร้อยละ 92.5 เป็นชนชาติคาวี ร้อยละ 42.8 เป็นชาวพุทธร้อยละ 92.5 โดยร้อยละ 74.8 สมรสแล้ว แบ่งกลุ่มอายุ พบว่า ส่วนใหญ่ ร้อยละ 38.8 อายุระหว่าง 26- 35 ปี กว่าครึ่งของกลุ่มตัวอย่าง (ร้อยละ 51.8) มีการศึกษาในระดับประถมศึกษา ร้อยละ 55.2 เป็นแม่บ้าน ส่วนใหญ่ (ร้อยละ 93) เป็นผู้ที่ลงทะเบียนเป็นแรงงานต่างด้าว ร้อยละ 38.8 อาศัยอยู่ในประเทศไทย เป็นระยะเวลา 3 ถึง 6 ปี ร้อยละ 32.9 เดือน เกือบครึ่งของกลุ่มตัวอย่างสามารถสื่อสารภาษาไทยได้

เกือบครึ่งของกลุ่มตัวอย่าง (ร้อยละ 49.8) มีความรู้ ต่อการจัดการขยะในครัวเรือนในระดับสูง และร้อยละ 61.2 มีทัศนคติต่อการจัดการขยะในครัวเรือนในระดับปานกลาง หากพบว่า มีเพียง ร้อยละ 16.5 ของกลุ่มตัวอย่าง มีพฤติกรรมการจัดการขยะในครัวเรือนในระดับดี สำหรับการเข้าถึงข้อมูลข่าวสารเรื่องการจัดการขยะในครัวเรือน ส่วนมาก (ร้อยละ 92.5) ได้รับข้อมูลข่าวสารจากหน่วยงานของรัฐบาลไทย และจากองค์กรเอกชน ร้อยละ 90.2 ของกลุ่มตัวอย่างมีถังขยะใกล้บ้าน ร้อยละ 95.8 มีระบบการเก็บขยะในชุมชนและ ร้อยละ 98.2 มีการรับซื้อขายของเก่าเพื่อลดขยะ ในชุมชน

จากการศึกษาถึงปัจจัยที่มีผลต่อการจัดการขยะในครัวเรือนของกลุ่มตัวอย่าง ซึ่งจำแนกเป็นปัจจัยนำ ปัจจัยเอื้อ และปัจจัยเสริม พบว่า ปัจจัยนำที่มีผลต่อพฤติกรรมการจัดการขยะในครัวเรือนอย่างมีนัยสำคัญทางสถิติ ได้แก่ เพศ อาชีพ รายได้ ระยะเวลาที่อยู่อาศัยในชุมชนที่ศึกษา สถานะภาพการจดทะเบียนแรงงานต่างด้าว สถานภาพสมรส ความรู้ และทัศนคติ (p value 0.001) ระดับการศึกษา (p value 0.024) จำนวนสมาชิกในครัวเรือน (p value 0.016) สำหรับปัจจัยเอื้อที่มีผลต่อพฤติกรรมการจัดการขยะในครัวเรือนอย่างมีนัยสำคัญทางสถิติ ได้แก่ การได้รับข้อมูลข่าวสารเรื่องการ(p value 0.001) สำหรับปัจจัยเสริมที่มีผลต่อพฤติกรรมการจัดการขยะในครัวเรือนอย่างมีนัยสำคัญทางสถิติ ได้แก่ การมีการรับซื้อขายของเก่าในชุมชน (p value 0.038)

การให้ความรู้ด้วยวิธีการที่เหมาะสมกับเพศ วัย อาชีพ รวมทั้งการใช้กระบวนการมีส่วนร่วม จะมีส่วนในการส่งเสริมพฤติกรรมการจัดการขยะในครัวเรือนของผู้อพยพชาวพม่า

สาขาวิชา สาธารณสุขศาสตร์ ลายมือชื่อนิสิต .....

ปีการศึกษา 2552 ลายมือชื่อ อ.ที่ปรึกษาวิทยานิพนธ์หลัก .....

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YE HEIN NAING: FACTORS INFLUENCING THE PRACTICE OF HOUSEHOLD WASTE MANAGEMENT AMONG MYANMAR MIGRANTS IN MUANG DISTRICT, RANONG PROVINCE, THAILAND. THESIS ADVISOR: ASSISTANT PROFESSOR RATANA SOMRONGTHONG, M.A., Ph.D., 80 pp.

This study is cross sectional study and was collected in Muang District, Ranong Province in March, 2010. Four hundred Myanmar migrants of age ranged 18-65 years asked by using structured questionnaire. The objective of the study are 1). To assess the level of knowledge and attitude towards household waste management and 2). To identify the factors influencing practice of household waste management among Myanmar migrants in the studied area.

Out of the respondents, 92.5% were female, 42.8% were Dawe, 92.5% were Buddhist, 74.8% were married and 38.8% were the age group 26 to 35 years. Among the respondents, half of the percentage 51.8% attended primary school, 55.2% were housewives, 93% were registered migrants, 41.8% were residing in Thailand for 3 to 6 years, 39.2% were staying in recent household for 1 to 3 years, monthly family income ranged 2500-5000 Baht is 35% and nearly half of the respondents 49% can communicate basically in Thai language.

Nearly half of the respondents 49.8% have high level of knowledge and 61.2% of the respondents have moderate attitude level. Only 16.5% had good practice towards household waste management. In terms of accessibility, 92.5% of the respondents got the information about household waste management from the sources of Thai government and INGOs. Around 90% had public trash bins near their house, 95.8% had household collecting system in their community and 98.2% had scrap buyers in their community.

The study reported that there were many factors influencing the practice of household waste management among Myanmar migrants. Among predisposing factors, there are significant differences between age, sex, occupation, duration of staying in recent household, migrant status, monthly family income, knowledge and attitude (P-value = 0.001), educational level (P-value = 0.024), family size (P-value = 0.016) and practice towards household waste management. Regarding to the enabling factors, there is significant difference between availability of household waste information (P-value = 0.001) and practice towards household waste management. Likewise, there is significant difference between availability of scrap buyers (P-value = 0.038) and practice towards household waste management for reinforcing factors.

The health education program targeting to age, sex and occupation including community participation should be emphasized in order to improve practice towards household waste management.

Field of the Study: Public Health Student's Signature .....

Academic Year: 2009 Advisor's Signature .....

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LIST OF ABBREVIATIONS

EIONET:	European Environment Information and Observation Network
GDP:	Gross Domestic Product
HDI:	Human Development Index
ILO:	International Labor Organization
IOM:	International Organization for Migration
UN:	United Nations
UNDP:	United Nations Development Program
WHO:	World Health Organization

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CHAPTER I

INTRODUCTION

1.1 Background and Rationale

The movement of people is not a new phenomenon throughout the world population‟s long history. Significant fluctuations in the volume and direction of the population movement have occurred in the past and are expected to continue in the future. For example, international population movement either within or from Asia was little from early 1950s to early 1970s. After that period, the flow of migration from Asia increased especially to the oil-rich countries of the Middle East (Skeledon, 2000). After the Gulf conflict in 1990/91, there was a shift in direction of population movement towards destinations within Asia and particularly countries exhibiting rapid and sustained economic growth such as Japan, Hong Kong, Taiwan, Korea Singapore, Malaysia, Brunei Darussalam and Thailand (Arifin, Anata & Pumpuing, 2005)

Migration can be forced or voluntary. It may be prompted by the need to flee a perilous situation or by the promise of a better life elsewhere. Factors pushing people to leave their homes include human rights abuses, poverty and lack of human security, lack of economic development and employment prospects, inequalities between and within countries, population growth, environmental degradation and natural disasters. Factors pulling migrants towards new countries include labor shortages and demographic decline, which hold out the promise of work and a better life; faster, cheaper and, in some cases, safer communications and transport systems; existing migration networks; and the possibility of sending money back to the country of origin to support immediate and extended family (United Nations Country Team in Thailand, 2005).

Migration is growing and increasingly visible. According to the International Labor Organization (ILO), an estimated 90 million migrant workers live and work outside their country of origin (Amnesty International, 2006). International migration within Asia has also increased over the last three decades. This is primarily a result of

widening wage differentials and labor demand and supply, and partly due to more political freedom (Archavanitkul &Guest, 1999). Nowadays, migration has become a widespread and persistent phenomenon that is changing the structure of family units, communities and societies in our modern world (Lu, 2008).

Migration from Myanmar into Thailand

A number of push and pull factors in Myanmar and Thailand has contributed to the massive influx of Myanmar people into Thailand since the early 1990‟s. Even though there are six official cross-border points along the 1,800 kilometer-long Thai-Myanmar border, many of these migrants have used mainly Mae Sai-Tachileik, Mae Sot-Myawaddy, Sangkhlaburi-Phayathongsu, and Ranong-Kawthaung (Sterne & Crissman, 1998; Chantavanich et al., 2000a; Caouette, 2001).

The following factors pushed tens of thousands of Myanmar people to neighboring countries with a great majority migrating to Thailand:

- Political repression by the socialist government and by its successor military regime;
- Forced relocation of villages and small towns particularly of ethnic groups by the military regime;
- Isolation of the country from the outside world and economic mismanagement by the socialist government; and
- Military regime‟s policy to allow operation of foreign businesses and to accelerate the cross-border trade with neighboring countries (Caouette et al., 2000).

Moreover, other pull factors have made Thailand attractive to Myanmar migrants. The Human Development Index (HDI) of Thailand, a measure of overall social and economic development used by the United Nations Development Program (UNDP), rose from 0.614 in 1975 to 0.781 in 2006. Thailand ranked 78 compared to Myanmar ranking of 123 (HDI 0.583, and GDP per capita ranked 164 of 177 as of 2006) among 177 countries in 2006 (UNDP Human Development Report 2003 and

2006). This socio-economic development prompted many Thai people to avoid dirty, difficult and dangerous occupations. The resultant labor shortage in these sectors attracted a large number of people from Cambodia, Laos, and Myanmar, countries that are economically poorer especially after the early 1990‟s (Chantavanich et al., 2000b). Second attraction was the relative increase of value of the Thai Baht in relation to the Myanmar Kyat over the last two decades. The exchange rate was 37.5 Kyats to one Baht in unofficial street markets as of December 2007 (New Era and Irrawaddy Online Journals, 2007).

Thai government policy and regulations concerning the employment of illegal migrants have both positive and negative consequences on illegal migration into the country. The Thai government initiated the first regulation in 1992 to give work permit to Myanmar migrants who stayed in the ten borders of provinces along the Thai-Myanmar border (Chintayananda et al., 1997). Between 1996 and 2003, seven amendments were made to this labor regulation to grant temporary work permits for illegal (unregistered) migrants from Cambodia, Laos and Myanmar (Archavanitkul & Saisunhton,2005). In 2004, substantial changes were introduced to allow all migrants including children and women to apply for registration. According to the Thai Ministry of Labor, as of February 2005, a total of 1,284,920 migrants applied for a household registration, the first step for issuance of work permit (Archavanitkul & Saisunhton, 2005). 838,943 were registered as laborers, and 60,123 were registered for sea and freshwater fishing, and these accounted 7.2% of the total registration (Ministry of Labor, Thailand, 2005).

Most of the Myanmar migrants are staying in many areas of Thailand and Myanmar. They live in very crowded areas. Environment around them makes them unhealthy. And they have to work very stressful jobs. They will expose so many risks because of their unhealthy environment, their daily lifestyle, their poor practice of household waste management, housing sanitation and vector control (Min, et al., 2009). So, Myanmar Migrants living in Thailand are facing with health problems related with household waste management.

Problem Statement

"The earth is one but the world is not. We all depend on one biosphere for sustaining our live. Yet each community, each country strives for survival and prosperity with little regard for its impact on others" (Daniel, 1995)

Nowadays, wastes are considered as one of the most concerning environmental problems that every associated organization has to be aware of. All the organizations that are involved with this problem must co-operate and try to solve this crisis together because it is a problem that occurs at every community level ranging from villages to large metropolitans. The problem of wastes seems to become more severe as time passes due to the growth in the country"s economics as well as other developments. These factors are responsible for promoting consumption among consumers, which in turn results in a dramatic increase of the amount of wastes (Kaewsawang, 2002).

The characteristics as well as the amount of solid wastes that occur in each community usually vary all the time; for example, one of the household wastes, plastic wastes, have a high tendency to increase more than other kinds of wastes because it is much more convenient to be used as packaging than other types of materials. Solid wastes from a certain community usually consist of a mixture of wastes. The majority of the wastes or 56 percents of them come from domestic wastes and plastics. Domestic wastes include rotten fruits or vegetables, leftover food, and paper. The second most common category of wastes involves things like pieces of wood, clothes, and metals. These kinds of wastes contribute to 26 percents of the total amount of solid wastes that occur in a community (Department of environmental quality promotion).

Household waste is waste which is generated in the day to day operations of a household. It can include everything from lawn clippings to burned out light bulbs. Many movements designed to get people thinking about environmentally friendly living have focused on household waste as something which can be easily manipulated to make a difference in the environment. Management of household waste is also a major issue, and it has been for hundreds of years.

When the amount of wastes that are produced and become substantially high which not all the wastes can be properly handled and treated then this would bring about many other problems to the environment.

Poor environmental conditions cause a large proportion of the global burden of disease. Maintenance of environmental goods and services underpins all aspects of human health and well-being.

The development of the newly industrialized countries affected changing of production, consumption and public service. Economic growth made technological development to respond the public need. This growth and development are resulted increasing solid waste quantity enormously.

Community solid waste, all over the world in the year 2000, had 38,170 tons daily or about 13.9 million tons annually comparing with 400 tons daily in 1999 (Office of Environment Policy and Planning, 2002). Community was the main source of solid waste which had municipal solid waste such as leftover food, paper, foam, plastic, glass bottles, metal, leather, rubber, cloth, etc. All of these wastes were major problem. Potential increasing of solid waste might cause problems to urban community in the future (Public Cleansing Department, 1998).

Exposures and health risks from most environmental hazards are very unevenly distributed, often impacting most heavily on specific populations, including women, children, and the poor or certain occupational groups.

There are many major environmental risk factors which cause many diseases such as diarrheal diseases, respiratory diseases, vector borne disease, road traffic injuries, unintentional poisonings and etc. Some of major risk factors are unsafe water and sanitation and poor hygiene, indoor and urban air pollution, climate change and so on. These will be due to poor environmental conditions.

The waste can block the drainage system. The stockpile of household waste will be turned into bacteria culture because it becomes rodents and insects food, which will be diseases carriers and result in public health hazard. It can create annoyance due to poor odor, poor scenery, and untidiness.

An efficient and last long solid waste problem solving concept is to reduce household waste quantity from the origin by recovery or recycle (using resources

effectively, conservatively, and preserving community environment). These could reduce the solid waste collection expenditure of the authority. People do not want to use solid waste anymore, but actually it still has some certain benefit. If we manage household waste properly, not contaminate itself, we can bring it back for additional benefit further more. Systematic management of household waste will reduce its quantity, which is the root of the problem solving. That is why reducing household waste quantity before recycling, providing knowledge, understanding, and application should be done.

The study area: Ranong Province, Thailand

Ranong is one of the southern provinces of Thailand, at the shore to the Andman Sea. Neighboring provinces are (from north clockwise) Chumphon, Surat Thani and Phang Nga. To the west, it also borders to Kawthaung Province, Union of Myanmar. The province is the least populated province of Thailand, 80% of the area is covered by forests, and 67% are mountainous terrain. Located 586 kilometers south of Bangkok, the province is comprised of five districts namely, Muang Ranong, La-un, Kra-Buri, Ka-Pur and Suk Samran Districts.

Referring the data from Ranong Provincial Health Office, Ranong, with the total population of about 177,244, has about 100,000 migrants, of which 61,895 are registered and the rest are working illegally (unregistered) (Ranong Provincial Health Office, 2005). Among five districts of Ranong Province, Muang District holds about 80,000 migrants (80% of all the migrants in the whole province), of which 48,974 (61%) are registered as of June 2005, and up to 99% are Myanmar people with low socio-economic background. The number of registered workers decreased to about 15,000 and unregistered workers with three-month temporary stay increased up to 65,000 resulting in the same total number of migrant population with significant decrease in the percentage of registered workers to 25%. (Muang District Health Office, 2007)

In Ranong, most of the Myanmar migrants are staying in Muang District rather than other districts. Environment and sanitation in Myanmar migrant community in Muang District is one of the public health problems. In addition,

around 35% of the Myanmar migrants have the risks of unhealthy environment, poor practice of household waste management, poor housing sanitation and poor vector control (Min, et al., 2009). Therefore, it is without question that Myanmar migrants are very vulnerable group of environmental health problems.

Health is the fundamental and inevitable part of all population movement. So, household waste management is important for being healthy.

1.2 Research questions

- What is the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand?
- What are the predisposing factors influencing the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand?
- What are the enabling factors influencing the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand?
- What are the reinforcing factors influencing the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand?

1.3 Research objectives

General objective

- To study factors influencing the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.

Specific objectives

- To describe the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand

- To assess the predisposing factors which influence household waste management of migrants
- To assess the enabling factors which influence household waste management of migrants
- To assess the reinforcing factors which influence household waste management of migrants

1.4 Research Hypotheses

- There is association between the predisposing factors and the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.
- There is association between the enabling factors and the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.
- There is association between the reinforcing factors and the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.

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1.5 Conceptual framework

Independent variables **Dependent variables**

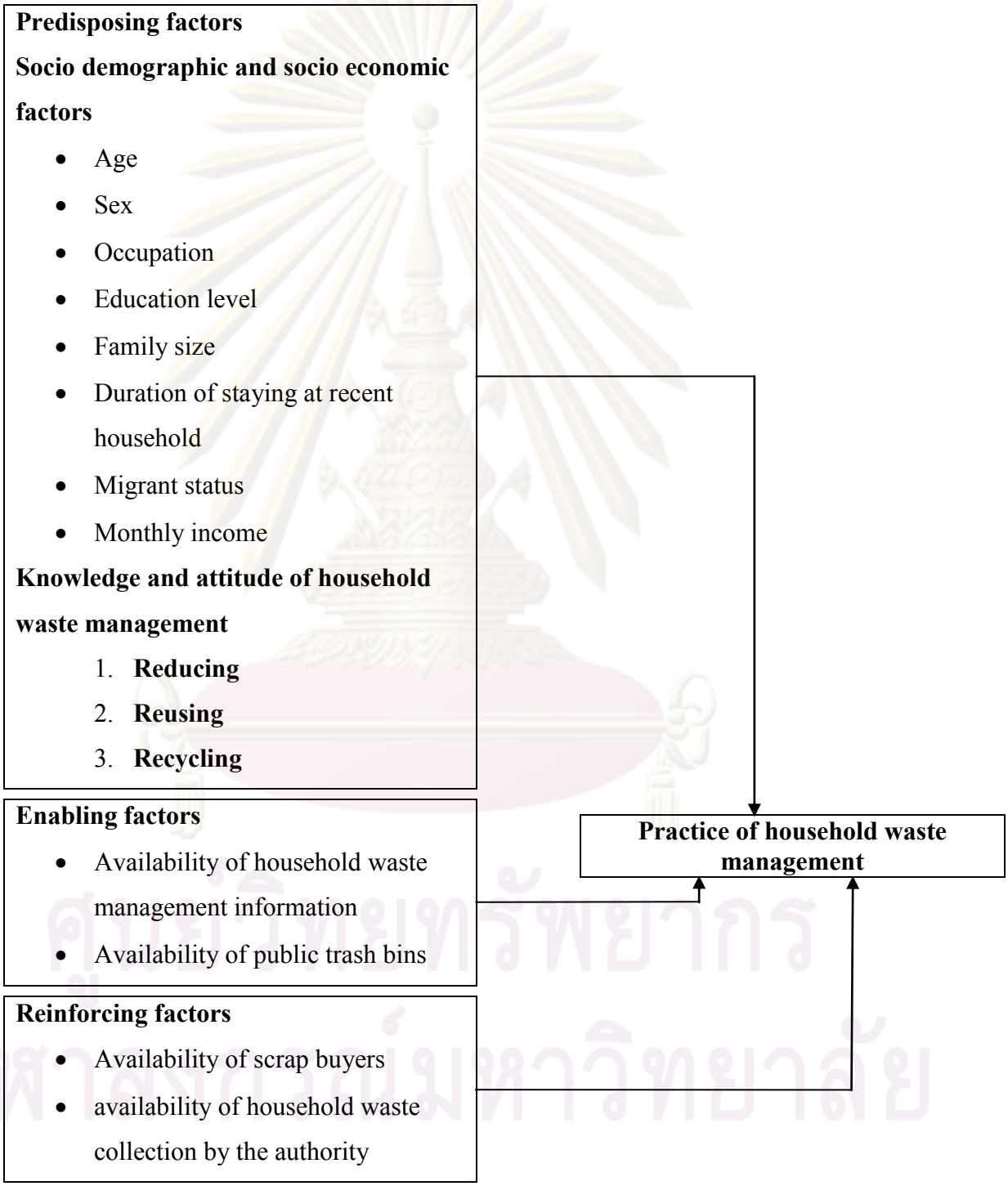

Figure 1: Conceptual Framework

1.6 Operational Definitions

"Migrants" refer to a person who is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national.

"Household waste" refers to kitchen waste eg., leftover food, unused paper, broken glass and bottles, old plastic bags and bottles and foam.

"Household waste management" refers to the actions and activities of Myanmar migrants to their household waste.

"Predisposing factors" of the practice of the household waste management among Myanmar migrants include socio-demographic factors, household condition, and knowledge and attitude of the practice of household waste management.

Socio demographic factors include age, religion, educational level, occupation, marital status, family size, duration of staying in recent household, total family income and migrant status.

Age refers to the age of the respondent at the time of the interview.

Religion refers to the religion of respondent at the time of interview. Religion is classified into 4 groups which are Buddhist, Muslim, Christian and others.

Educational level refers to the highest level of education that the respondent had attained at the time of interview. Education is classified into 5 groups which are never go to school, primary school level (1-4 years of school), secondary education level (5-8 years of school), high school level (9-10 years of school) and higher education (university).

Occupation refers to the type of job that the respondent has to earn at the time of interview. Occupation is classified into 6 groups which are housewife, rubber plantation worker, fishery worker, general worker, and construction worker and others.

Marital status refers to the legal (conjugal) status of each individual in relation to the marriage laws or customs of the country. This is categorized into single, married, divorced, separated, widowed and co-habit marriage (UN).

Family size refers to the numbers of the family member including respondent.

Total family income refers to the total amount of monthly income earning of the whole household. Economic status of the respondents was classified as 2500-5000 Baht, 5001-7500 Baht, 7501-10000 Baht and >10000 Baht.

Duration of staying in recent household refers to the length of the time of a single episode of staying in current household.

Language skill is categorized into 4 categories which are cannot communicate at all, can communicate basically, can speak fluently but cannot read and write, and fluently in Thai language.

Migrant status in Thailand refers to the having permission for employment and staying in Thailand. This is classified into 2 categories such as registered and unregistered migrant (IOM, Thailand).

According to Merriam Webster Dictionary, **Knowledge** is defined as

- Cognizance.
- The fact or condition of knowing something with familiarity gained through experience or association, acquaintance with or understanding of a science, art, or technique.
- The fact or condition of being aware of something, the range of one‟s information or understanding (Marriem-Webster).

In this study, knowledge refers to the respondents‟ ability to answer the practice of the household waste management and knowledge about the household waste management. Knowledge will be categorized into high, moderate and low. The knowledge part consists of 10 questions and the score will be 2 for correct answer, 1 for not sure answer and 0 for incorrect answer. The highest score is 20 and the lowest is 0.

Attitude towards household waste management in this study, attitude towards household waste management refers to the respondent‟s opinion of agreement or disagreement to the statement concerning household waste management. Attitude will be measured in 3 categories according to the Likert scale (McDowel Ian & Newell C).The attitude part consists 8 questions and the questions consist of both negative and positive aspects. For positive questions, the score will be given 5 for strongly agree, 4 for agree, 3 for uncertain, 2 for disagree and 1 for strongly disagree. For negative questions, the score will be given 5 for strongly disagree, 4 for disagree, 3 for uncertain, 2 for agree and 1 for strongly agree. So, possible score range will be from 8 to 40.

Practice of the household waste management refers to the behaviors of people to use their knowledge and understanding of household waste management. Practice consists of 9 questions and the score will be 3 for every day, 2 for always, 1 for sometimes and 0 for never. So, the highest score is 27 and the lowest score is 0.

“Enabling”

In health education and promotion, enabling means taking action in partnership with individuals or groups to empower them, through the mobilization of human and material resources, to promote and protect their health. (WHO. 1998)

“Enabling factors” offer people protection from threats to health, and enable people to expand their capabilities and develop self reliance in health. They encompass where people live, their local community, their household, where they work and play, including people‟s access to resources for health, and opportunities for empowerment (WHO, 1998). In other words, it is a supportive social environment with social justices, equity, dignity, and is free from stigma and discrimination, especially for vulnerable people and marginalized target groups like migrant people, etc. Enabling factors include source of household waste management information and availability of public trash bins.

In this study, **“Availability of household waste management information”** can be defined as frequency in all information about household waste management

that can be coming from any kinds of media such as television, radio, newspaper, magazine/journal, verbal communication, formal publication, pamphlets, brochures and posters in both Thai and Myanmar languages by seeing, listening, talking and reading.

"Reinforcing factors" refer to factors in the surrounding social environment of a program of person that may have an effect on it and on the intended outcomes. These factors influence the continuation of the behavior.

Reinforcing factors include scrap buyers and household waste collection by the authority.

Scrap buyers mean the person who goes around the community and buys the unused material from the households.

Household waste collection by the authority refers to all of the services which are supported by the Thai government and all public and private organizations.

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CHAPTER II

LITERATURE REVIEW

This research is concerning about the factors influencing of the practice of household waste management among Myanmar migrants. According to the concept of PRECEDE framework, for the factors influencing the practice of household waste management, there are 3 main factors. They are predisposing, enabling and reinforcing factors. Followings are the components of this literature review.

1. **Concept of PRECEDE framework**
2. **Household waste**
3. **Household waste management**
4. **Factors influencing the practice of household waste management**

2.1 Concept of PRECEDE framework

In Green, et al., (1980), analysis of human practice, there were factors causing behaviors. The concept had three groups:

Group 1. Intra individual causal assumption – reasons or factors of human behavior came from internal (personality) such as knowledge, attitude, belief, value, inducement, or intention.

Group 2. Extra individual causal assumption – reasons of human behavior came from external which were environment, social structure such as politics, economy, education, religion, demography, geography, etc.

Group 3. Multiple causal assumptions – human behavior could cause from both internal and external of people.

Concept of group 3 was based on theory, psychology of learning, social psycho-logy, sociology, demography, and others to apply in analyzing the cause of behavior and to solve the problem with many vocational educations (Makmattayan, 2003).

PRECEDE framework stood for predisposing, enabling and reinforcing. This process used predisposing, enabling and reinforcing factors for analyzing and evaluation results from human behaviors.

Green, et al. showed relationship between each factors and personal health behavior problem. This could be planned for problem solving accordingly. The researcher would like to propose three factors (Green, et al., 1980).

2.2 Household waste

2.2.1 Definition of household waste

Household waste means waste from households as well as other waste, which, because of its nature or composition, is similar to waste from households (EIONET).

Solid waste comprising of garbage and rubbish (such as bottles, cans, clothing, compost, disposables, food packaging, food scraps, newspapers and magazines, and yard trimmings) that originates from private homes or apartments. It may also contain household hazardous waste. Also called domestic waste or residential waste (Business dictionary.com).

Packaging material not associated with food products, discarded clothing, furniture, small appliances, toys and other waste material generated in the course of residential living. Ashes and excrement (disposable diapers, cat litter, and dog droppings) are considered a household waste when placed inside a plastic liner within the garbage container (Davis California).

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From the definitions mentioned above, the researcher concluded that household waste management includes mainly kitchen waste and other wastes generated from household.

2.2.2 Types of household waste

There are two types of household waste. They are hazardous waste and non hazardous waste.

Hazardous household wastes are battery, unused electronic material, insecticide, fluorescence lamp and etc.

Non hazardous household wastes are kitchen wastes such as leftover food and vegetables, unused paper, old plastic bags and bottles, broken glass and bottles and etc.

Most kinds of the kitchen wastes are combined with water and humidity more than 50 percents. These factors can rapidly make waste degradable and produce unpleasant smell (Jantataeme, 2005).

2.2.3 Components of household waste

(Kaewsawang, 2002) According to definition from the environmental Institute of Thailand,

1. Vegetables, fruits, and food are defined as the left over vegetables, fruits and food from the cooking or preparation processes. They are also called kitchen wastes.
2. Paper is defined as all the materials that are produced or manufactured from paper based textiles, such as, newspaper, magazines, books, cards, paper bags, paper boxes, etc.
3. Plastics refer to any material or product that is made out of plastics, such as plastic bags, plastic plates or dishes, plastic toys, and fiberglass products, etc.

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4. Glass is defined as all the materials or products that are manufactured from glass, such as mirrors, bottles and light bulbs, etc.

2.3 Household Waste Management

It is one kind of practices of people to use their knowledge and understanding of household waste management.

It includes 3 kinds of methods in the practice of household waste management. They are: (LaRue, 1997)

1. **Reduce**
2. **Reuse**
3. **Recycle**

Reducing

Reducing means to create less waste so that there is less that must be recycled or thrown away (LaRue, 1997).

It is important to reduce the amount of waste we produce. This can be done in many ways including those listed below. It is better to reduce the amount of waste we produce so we send less to landfill. Shop smart; consider the packaging that foods are contained in. Buy loose fruit and vegetables. For example, consider buying in bulk to minimize packaging waste (oneindia).

There are three steps in reducing (Makmattayan, 2003)

1. **Reject** – people should not use product creating pollution such as foam container.
2. **Reduce** – people lowered their solid waste quantity by buying product in big container instead of small ones, reduced using difficult to dispose product (plastic bags).

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3. **Refill** – people should use refilling type product such as dishwashing solution, liquid soap, cleaning solution so that solid waste packaging could be reduced.

Reusing

Reusing refers to buy things that can be used again and again, or to figure out another way that item can be used (LaRue, 1997).

We have many things around our environment which are reusable such as battery, plastic bags and bottles, newspaper and so on. Reusing can also reduce the amount of household waste and make our household clean.

People should bring back products to use again or repair or give to the others such as using both sides of paper, donating clothes to the others, bringing back bottles to refill drinking water, etc. (Makmattayan, 2003).

Recycling

Recycling is defined as the practice instead of throwing an item in the garbage, to give it to a person or company who will use it, or make something else with it (LaRue, 1997).

Householder could recycle waste easily by selling to scrap buyers or to shops. These materials would be brought back to the manufacturing process.

2.3.1 Advantages of household waste management

Advantages of household waste management were as follow: (Makmattayan, 2003)

1. Earned from reuse and recycle materials by selling such as papers, glass, plastic, etc. to scrap buyers.
2. Reduced household waste to a certain amount for disposal only.
3. Saved budget in household waste disposal.

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4. Reduced the environmental problems and saved natural resources by reused and recycled.

2.4 Factors influencing the practice of household waste management

2.4.1 Predisposing factors

Gender

Kaewsawang, S. (2002) studied an evaluation of knowledge, attitude and behavior of household and commercial sectors to solid waste selection in Salaya municipality, Nakhornpathom province. It found that the level of knowledge in female was higher than male. The average knowledge in female was 8.38 scores and the average knowledge in male was 7.72 scores. Based on statistical test, the different gender makes a difference in knowledge of solid waste selection with statistical significant at the 0.05 level.

Occupation

Occupation showed personal social status, each type of work would have different duties so that occupant could have different knowledge, skill, and ability according to their work, which could affect their goals and behaviors (Makmattayan, 2003).

Education level

It was an important instrument for developing knowledge, opinion, value, and skill which could affect people opinion and a vision because educational level affected changing attitude and practice also (Makmattayan, 2003).

Population and family size

The major factor that influences total waste generation is population. The unit of calculation pertaining to waste generation is per capita per day. Thus, if the population is more, generation of waste will be higher. Therefore,

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the rate of waste disposal depends directly on population. The report of the Department of Environment, North Carolina in U.S.A. (1993) about waste disposal shows a strong correlation between population and disposal of waste. Larger household size produced more per capita waste, but the findings does not confirm the claim of positive or direct correlation with population / family size and waste generation.

On the contrary, Jenkins (1993) in his study indicated that smaller household sizes produced more per capita waste. His finding also does not confirm the claim of positive or direct correlation. Another study conducted by Cailas et al (1993) found no relation between family size /population and waste generation.

Income

Income has been identified to be positively correlated with waste generation. The study conducted by Gunnerson and Jones (1984) showed that per capita waste consumption is lower in countries having low income. The results of their findings are as follows:

Cost of waste disposal has a potential influence on waste generation. Greater cost might lead to less waste generation. The study of Daniel et al (1995) showed that higher disposal cost was associated with lower level of waste disposal.

Knowledge and attitude

It is a well established conviction that knowledge and attitude significantly influence practice. The generation and disposal of waste are not an exception to this phenomenon. A random digit dialing telephone survey among 504 subjects in Massachusetts was conducted by Tuthill et al. (1987). In that study, automotive oil was reported to be the most commonly discarded hazardous household material comprising 33% of the waste stream. Over half of the surveyed population (57%) disposed of this material via ground, sewer, and landfill totaling 8.8 million quarts per year.

In a study conducted by Bass et al. (1990), it appeared that 61% of the respondents claimed that household cleaners were the most commonly used hazardous products. Scudder (1991) in a study to determine the community"s attitudes and knowledge about household hazardous waste and disposal method showed that majority of the respondents pointed pesticides, dish water, soap, paints etc. as hazardous waste. The respondents were not aware of the environmental impact on land and water due to improper disposal of household waste, but they were aware of the disposal method.

2.4.2 Enabling factors

Current environment information disseminated through radio, television, newspapers, journal and other printed matters affecting people, gained knowledge about environmental conservation which created action in environmental conservation afterward. When people knew much about the environment, they would have high knowledge level, attitude to a better behavior (Makmattayan, 2003).

2.4.3 Reinforcing factors

Promotional programs influence household waste management practice by improving the knowledge and attitude of the people. In Thailand, promotional activities in regards to rural solid and liquid waste disposal are being done as part of the components of the environmental sanitation program. In this program, individual family is responsible for refuse collection and dispose of the same. The disposal methods, incineration and composting are being proposed through demonstration and by organizing motivational activities. Promotional activities on the usage of seepage pit and drainage systems have been incorporated in the program as the tools for liquid waste disposal. The report of the Sanitation Division shows a satisfactory coverage of 82.54% up to May/94 (Noosorn, 2004).

Scrap buyers

They were in the basic trading of rubbish, which proceeded by small private groups unofficially. Householders sold rubbish or leftover materials to the scrap buyers then they sold to the others further more until to the recycle or reuse factory (Makmattayan, 2003).

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CHAPTER III

RESEARCH MEHTODOLOGY

3.1 Study design

Cross-sectional survey study with quantitative approach was used to assess the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.

3.2 Instruments

Interview questionnaires in Myanmar Language were used. It depended on three sections: (1). Predisposing factors, (2). Enabling factors, and (3). Reinforcing factors.

3.3 Study Population and Area

Myanmar migrants, male and female, registered and unregistered, from different backgrounds, and with different types of occupation were included in this study and this study was done among estimated number of 80,000 Myanmar migrants in Muang District of Ranong Province, Southern Thailand.

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3.4 Sample Size

According to Cochran"s formula,

$$n = \frac{Z^2 pq}{d^2} = \frac{(1.96)^2 (0.5) (0.5)}{(0.05)^2} = 384$$

n = sample size

Z = standard value for 95% confidence interval = 1.96

d = error allowance = 0.05

p = the proportion of targeted population who expected to practice of household waste management

= 50% = 0.5 (estimated prevalence of 50% was used in order to have the maximum sample sizes as there are no specific and similar studies on Myanmar migrants)

q = 1-p = 1-0.5 = 0.5

10% of the calculated for missing data = 38

Therefore, sample size was 384+38 = 422 migrants

Sample size collected = 400 migrants

3.5 Sampling Methods

There are five districts in Ranong Province; Muang district is selected purposively.

Due to great mobility of Myanmar migrants, their different work nature and hours, geographically scattered distribution, and large proportion of unregistered workers of target population, random sampling was used.

In Muang District of Ranong Province, the majority of the Myanmar migrants families live and/or in particular groups and in particular areas (zones), mostly depending on the similar types of occupation or ethnicity. In each particular area (zone), the subjects were selected by simple random sampling, and interviews were done accordingly. There are 9 sub-districts in Muang District. When the sample in one sub-district was not enough, other sub-districts were selected until the sample size met the required number.

3.5.1 Inclusion criteria

- Myanmar migrants who are aged between 18 years and 65 years of both males and females

- Myanmar migrants who are the heads of the households or housewife or the main person who does the house works.
- Myanmar migrants who can speak Burmese language
- Myanmar migrants who are willing to participate in this research
- Myanmar migrants who have long duration (more than 6 months) of staying at current household

3.5.2 Exclusion criteria

- Myanmar migrants who cannot communicate with interviewers due to the hearing defect
- Opposite to inclusion criteria

3.6 Measurement Variables

Their practice towards household waste management among Myanmar migrants was measured by assessing the predisposing, enabling and reinforcing factors. Their opinions of how they manage their household waste and why they want to do were recorded.

Independent variables

- **Predisposing factors –**
  - Age
  - Sex
  - occupation
  - Education level
  - Family size
  - Duration of stay in recent household
  - Migrant status

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- Monthly income
- Knowledge and attitude towards household waste management
    - ❖ How to manage their household waste – reduce, reuse and recycle

- **Enabling factors –**
    - Availability of household waste management information
    - Availability of public trash bins

- **Reinforcing factors –**
    - Availability of scrap buyers
    - Availability of household waste collection by the authority

Dependent variables

- Practice towards household waste management among Myanmar migrants

3.7 Questionnaire Field Test

Before starting data collection, a visit to Ranong Province was made for rapid assessment, during that visit, meeting and discussion with local authorities, health personals from Ranong Province, community health workers and some migrants were done, and suggestions were received for this study. Then, some revisions were done accordingly for better set up of data collection and also questionnaire design.

3.8 Data Collection Tools

Because of the great mobility and geographically scattered distribution of the migrant workers, their working nature and working hours, and their free time and willingness for interview, it was very difficult to arrange for data collection.

Therefore, with assistance of local persons, field visit, subject selection and interviewing were done in both day time and in the evening in their residences. By doing interview in their homes, we could observe the household conditions of them.

In questionnaire of this study, there are five parts such as general and household information, knowledge towards the household waste management, attitude towards the household waste management, practice of the household waste management and access to the household waste management information and services.

Before conducting interviews, 7 Myanmar migrant health volunteers who have been working for Muang District Health Office were trained how to conduct interview and how to ask the questionnaire. Before interview, the purpose, process, confidentiality and ethical issues and benefits of the study were explained. After getting the informed signed consents, the interview questionnaires were asked. For an open-ended question, migrants were interviewed, and their feeling and expression on practice towards household waste management were note-taken. The whole interview took a few minutes.

3.9 Data Analysis

Questionnaire was coded before entering the data to computer by the researcher.

All data was organized and analyzed by the researcher using the Software Package for Social Studies (SPSS) version 16.

Data analysis was conducted to address the specific objectives of the study.

Descriptive statistics such as frequency, percentage, mean and standard deviation were used to describe the specific objectives of the study. For relationship of the variables, Chi-square and Fisher"s exact test were used.

3.10 Scoring and its classification

Knowledge towards household management

- The correct answer get: 2 scores
- The not sure answer get: 1 score
- The wrong answer get: 0 score

The possible scores ranged from 20 and 0 and respondents‟ knowledge were classified into three levels. The cut-off point for “high knowledge”: greater than 80% of 20 questions scores, “moderate knowledge”: from 60% to 80% of 20 scores, “low knowledge”: less than 60% of 20 scores.

Attitude towards household waste management

The answers were categorized into five levels: strongly agree, agree, not sure, disagree and strongly disagree.

For positive items, the answer: “strongly agree” get 5 scores
“agree” get 4 scores
“not sure” get 3 scores
“disagree” get 2 scores
“strongly disagree” get 1 score

For negative items, the answer: “strongly agree” get 1 score
“agree” get 2 scores
“not sure” get 3 scores
“disagree” get 4 scores
“strongly disagree” get 5 scores

The respondents‟ attitude was classified into three levels. The cut-off point for “good attitude”: greater than 80% of 40 scores, “moderate attitude”: from 60% to 80% of 40 scores, “bad attitude”: less than 60% of 40 scores.

Practice towards household waste management

The answers were categorized into 4 levels (everyday, always, sometimes and never). For those who will answer “everyday” get 3 scores, “always” get 2 scores, “sometimes” get 1 score and 0 for “never”. The possible scores ranged from 27 and 0 and the respondents‟ practice was classified

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into 3 levels “good practice” greater than 80% of 27 scores, “moderate practice”: from 60% to 80% of 27 scores, “poor practice”: less than 60% of 27 scores.

3.11 Reliability and Validity Test

3.11.1 Reliability

The reliability was pre tested on the similar population in Samut Sakorn Province on 30 Myanmar migrants of both genders. Cronbach‟s alpha coefficient was used to measure reliability of the data collection tool. The Cronbach‟s alpha coefficient was 0.7.

3.11.2 Validity

Validity was the ability to measure what it is designed to measure. The content and face validity were checked by three experts after constructing the draft questionnaire. The validity was revised after testing the questionnaire.

3.12 Ethical Consideration

- Under the guidance of College of Public Health Sciences, and local authorities, this study was done.
- Interviewees were received full explanation about the study including the purpose, process and benefits of the study.
- Informed signed consent was taken by the interviewees, considering
    - Willingness to participation
    - Freedom of withdrawal
    - Confidentiality
    - Convenience
    - Access to final report or results of the study if desired
    - Assurance to data not to use for other purpose

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3.13 Confidentiality

All information obtained from the study was kept confidentially in a secured place accessible only during the study and all of the answers were anonymous. Code was used to identify the data collection forms.

3.14 Limitation of this study

- This study was done only in Muang District, Ranong Province and so that the findings could not be generalized to the whole Myanmar migrants‟ population in Thailand.
- As this study showed the practice towards household waste management among migrant workers in general, the finding might not be exactly the same with the practice of management of specific waste disposal.

3.15 Expected Benefits and Application of this study

This study is expected to give the baseline data on the patterns of the practice towards the household waste management among migrants in Muang District, Ranong Province, Thailand.

It is also expected that the findings of the study might be useful for the review and planning of improving environmental health for migrants and health information, education and communication (IEC) materials development, and behavior change communication (BCC) interventions regarding household waste management among Myanmar migrants in Thailand and elsewhere.

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CHAPTER IV

RESULTS

This chapter includes the result of this study. This chapter includes the descriptive findings of the general information and household information of Myanmar migrants in Muang District, Ranong Province, knowledge towards household waste management, attitude towards household waste management, practice towards household waste management and access to the household waste management information and services in Muang District, Ranong Province.

Total number of subjects in this study was 400. The participants in this study were Myanmar migrants of age between 18 -65 years who were residing in Muang District, Ranong Province and the heads of the households or housewife or the main person who does the house works.

4.1 General information and household information

This part shows frequency distribution of selected variables describing background characteristics of the respondents. Table 1 reveals that general information and household information such as age, sex, ethnicity, marital status, religion, education, occupation, duration of stay in Thailand, duration of stay in current household, migrant status in Thailand, total family income per month, income-expenditure balance, Thai language skill, condition of household and about household waste information of the respondents‟ households.

Age

Regarding age, all respondents were age ranged from 18 to 65 years which was one of the selection criteria. The mean age was 32.56 and SD was 9.277. The majority of respondents (38.8%) were in the age group from 26 to 35 years. Only few of them were in the age group more than 65 years and it is 9.5%. Other groups were in

the age group between 18 and 25 and between 36 and 45 and they were 25.5% and 26.2% respectively.

Sex

In Myanmar migrants, most of the females are doing the house work mainly as it is one of the Myanmar cultures. So, most of the respondents were females (92.5%) and the rest were males (7.5%).

Ethnicity

Majority of the respondents were Dawe (42.8%) and second most was Burma (30.0%). Other ethnicities were Karin (2.8%), Mon (13.2%) and Rakhine (4.8%). The remaining 6.5% were Myate and Shan.

Religion

Almost all of the respondents (92.5%) proclaimed Buddhism as their religion. Only few of them, 6.0% was Muslim and 1.5% was Christian.

Marital status

Most of the respondents were married (74.8%) and the others were single (15.5%), separated (5.2%) and widowed (4.5%).

Education

For educational attainment, majority of respondents (51.8%) finished primary education and 35.0% finished secondary education. Others 11%% and 0.2% of the respondents completed high school level and higher education respectively while 2% of them never go to school.

Occupation

Over half of the respondents surveyed (55.2%) were housewives. 22.5% were general workers and 4.8% were construction workers. Others 3.2% were fishery workers and 0.5% was rubber plantation workers. The remaining 13.8% were engaged

in seafood processing such as peeling of the shrimps and fishes, working in gardens and in NGOs.

Migrant status

Most of the respondents 93.0% were registered and the rest were unregistered.

Duration of staying in Thailand

Length of stay in Thailand varied from 1 year to maximum 20 years. Mean duration of stay was 6.28 and SD was 3.842. Nearly half of the respondents (41.8%) were residing for 3 to 6 years. Others 34.2% surveyed were residing for more than 6 years and the remaining 24.0% were staying for less than 3 years.

Duration of staying in current household

Over one third of the respondents (39.2%) were staying in current households for 1 to 3 years. Another one third (31.0%) were residing in current households for 4 to 6 years. The others 15.2% and 14.5% of the respondents were staying in their current households for more than 6 years and less than 1 year respectively.

Monthly family income

The level of economic status of the respondents had been assessed on the basic of monthly total family income. Total monthly family income ranged from 2500 Baht to 20000 Baht. As they were working as laborer in various sectors, 35%, 28% and 25.5% of the respondents had monthly family income of 2500-5000 Baht, 7501-10000 Baht and 5001-7500 Baht respectively. Only 11.5% had monthly family income more than 10000 Baht.

Income-expenditure balance

43.5% of the respondents answered that their family income was enough for their family expenditure. Family income of 38.5% of the respondents was not enough for their expenditure balance and 18% could have the excess income.

Thai language skill

For Thai language skill, 49% of Myanmar migrants in this study can communicate basically and 34.5% of them cannot communicate at all. The rest of respondents were fluent in Thai language but only 1.2% can read and write Thai language.

Household information

More than half of the respondents (56.8%) answered there were smokers in their households and 43.2% answered there was not. Among those 56.8% of the respondents, 74% of them kept the waste from smoking in trash bins and 26% threw away the waste outside the household.

There were alcohol drinkers in the households of 66.8% of the respondents and there was no alcohol drinker in the households of the rest of the respondents.

Among 400 respondents, 81% were residing in rental house with their families but 18.5% of the respondents were residing in shared room with other families while the rest (0.5%) were staying with their friends‟ households. More than half of the respondents (54.2%) had the family size 3-6 persons in their household and 36.2% and 9.5% had the family size less than 3 and more than 6 persons respectively.

There was 1 bedroom in the households of 83.2% of the respondents and 2 and more bedrooms in 16.8% of the respondents‟ households. But in 67.5% of the respondents‟ households, there were 2 and more doors and there was only 1 door in 32.5% of the respondents‟ households. Nearly three quarters (71%) of the respondents had only 1 window in their households and 18.2%, 5.2% and 4.8% had 2 windows, no window and 3 windows respectively while 0.8 % was having 4 widows.

Most of the respondents (92.8%) had latrines but 7.2% did not have latrines. Most of the latrines (73%) were the latrines attached inside the households and the rest (27%) were outside the households and shared with the others to use.

Most of the respondents (94.2%) had the trash bins in their households while 5.8% were not having the trash bins. Most of the trash bins (70.6%) were without cover and the rest (29.4%) had covers. More than three quarters of the respondents (75.6%) had only 1 trash bin in their households and 22.5% and 1.9% had 2 trash bins and 3 trash bins respectively.

One third (34.7%) of the respondents used their trash bins for 6 months and 30.2% and 17.2% used their trash bins for 3 months and 1 year respectively. But the remaining (17.8%) were using their trash bins irregularly. More than half 60.7% of the respondents emptied their trash bins every day. 34% and 5.3% emptied their trash bins every 3 days and every 1 week respectively. The most produced household wastes among Myanmar migrants were leftover food (90.2%) and old plastic bags and bottles (80.5%).

Table 1: General information and household information

Socio demographic and socio economic characteristics	Number (N)	Percentage
Age (n = 400)		
18-25	102	25.5
26-35	155	38.8
36-45	105	26.2
>65	38	9.5
Mean = 32.56, Median = 31.00,		
SD = 9.277		
Range = 18-65		
Sex (n = 400)		
Male	30	7.5
Female	370	92.5
Ethnicity (n = 400)		
Burma	120	30.0
Karin	11	2.8
Mon	53	13.2
Dawe	171	42.8
Rakhine	19	4.8
Other	26	6.5
Religion (n = 400)		
Buddhist	370	92.5
Christian	6	1.5
Islam	24	6.0
Marital status (n = 400)		
Married	299	74.8
Separated	21	5.2
Single	62	15.5
Widowed	18	4.5

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Table 1: (continued) General information and household information

Socio demographic and socio economic characteristics	Number (N)	Percentage
Education (n = 400)		
No education	8	2.0
Primary	207	51.8
Secondary	140	35.0
High	44	11.0
University	1	0.2
Occupation (n =400)		
Housewife	221	55.2
Rubber plantation worker	2	0.5
General worker	90	22.5
Fishery worker	13	3.2
Construction worker	19	4.8
Other	55	13.8
Migrant status (n = 400)		
Register	372	93.0
Unregister	28	7.0
Duration in Thailand (n = 400)		
<3 years	96	24.0
3-6 years	167	41.8
>6 years	137	34.2
Mean = 6.28, Median = 5, SD = 3.842, Range = 1year – 20 years		
Duration in current household (n = 400)		
<1 year	58	14.5
1-3 years	157	39.2
4-6 years	124	31.0
>6 years	61	15.2
Mean = 4.21, Median = 3.00, SD = 3.295 Range = 6months – 20 years		
Family income (n = 400)		
2500-5000 bahts	140	35.0
5001-7500 bahts	102	25.5
7501-10000 bahts	112	28.0
>10000 bahts	46	11.5
Mean = 7243.00, Median = 7000, SD = 3.317 Range = 2500 – 20000 bahts		

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Table 1: (continued) General information and household information

Socio demographic and socio economic characteristics	Number (N)	Percentage
Income-expenditure balance (n = 400)		
Excess	72	18
Enough	174	43.5
Not enough	154	38.5
Thai Language skill (n = 400)		
Cannot communicate at all	138	34.5
Can communicate basically	196	49.0
Can speak but cannot read and write	61	15.2
Fluently at all	5	1.2
Smoker in household (n = 400)		
Yes	227	56.8
No	173	43.2
Smoking waste (n = 227)		
Throw away outside household	59	26.0
Keep in trash bin	168	74.0
Alcohol drinker (n = 400)		
Yes	133	33.2
No	267	66.8
Kind of household (n = 400)		
With one family	324	81.0
Shared room with other families	74	18.5
Other	2	0.5
Family size		
<3	145	36.2
3-6	217	54.2
>6	38	9.5
Mean = 4.15, Median = 4.00		
SD = 1.667		
Bedroom (n = 400)		
1	333	83.2
2 and above	67	16.8
Doors (n =400)		
1	130	32.5
2 and above	270	67.5

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Table 1: (continued) General information and household information

Socio demographic and socio economic characteristics	Number (N)	Percentage
Windows (n = 400)		
0	21	5.2
1	284	71.0
2	73	18.2
3	19	4.8
4	3	0.8
Latrine (n = 400)		
Yes	371	92.8
No	29	7.2
Type of latrine (n = 371)		
Attached inside household	271	73.0
Outside household and sharing with the others	100	27.0
Trash bin (n = 400)		
Yes	377	94.2
No	23	5.8
Number of trash bin (n = 377)		
1	285	75.6
2	85	22.5
3	7	1.9
Type of trash bin (n = 377)		
With cover	111	29.4
Without cover	266	70.6
Duration of using trash bin (n = 377)		
3 months	114	30.2
6 months	131	34.7
1 year	65	17.2
Other	67	17.8
Emptying of trash bin (n = 400)		
Everyday	229	60.7
Every 3 days	128	34.0
Every 1 week	20	5.3
Rodents (n = 400)		
Yes	360	90.0
No	40	10.0

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Table 1: (continued) General information and household information

Socio demographic and socio economic characteristics	Number (N)	Percentage
Sick person (n = 400)		
Yes	5	98.8
No	395	1.2
Stock pile of garbage near household (n = 400)		
Yes	225	56.2
No	175	43.8
Mostly produced household waste (n = 400)		
Leftover food		
Yes	361	90.2
No	39	9.8
Broken glass and bottles		
Yes	96	24.0
No	304	76.0
Unused paper and cards		
Yes	132	33.0
No	268	67.0
Foam container/ food container		
Yes	135	33.8
No	265	66.2
Old plastic bags and bottles		
Yes	322	80.5
No	78	19.5

4.2 Knowledge towards household waste management

Questions were asked to explore the respondent‟s knowledge about household waste and management. There were 10 questions for checking the respondents‟ knowledge. Table 2 reveals the frequency and percentage of Myanmar migrants who answered correctly, incorrectly and uncertainly to each question about knowledge towards household waste management. Among these questions, most of the respondents could not answer correctly question number 9 because they thought burning household waste cannot affect anything to environment and that question was very controversy for them.

Table 2: Number and percentage of Myanmar migrants who answered correctly, incorrectly and not surely to each question about knowledge towards household waste management (n = 400)

No.	Statement	Frequency (Percentage)		
		Correct	Incorrect	Not sure
1.*	Waste paper, cloths and nappies, a piece of metal and wood, scrap iron and scrap can are not rubbish.	291 (72.8)	91 (22.8)	18 (4.5)
2.	Kitchen waste – left over food, vegetable and fruit is garbage.	357 (89.2)	17 (4.2)	26 (6.5)
3.	Household waste is one of the problems that polluted solid, water and air.	311 (77.8)	54 (13.5)	35 (8.8)
4.*	Burning foam and plastic is not the best way.	273 (68.2)	95 (23.8)	32 (8.0)
5.	Dropping leftover food into the river can make decaying the water because it is aquatic animal food.	267 (66.8)	99 (24.8)	34 (8.5)
6.	Plastic bags and plastic bottles cannot be degraded naturally.	280 (70.0)	61 (15.2)	59 (14.8)
7.	Food waste, vegetable and fruits are germ culture sources.	353 (88.2)	17 (4.2)	30 (7.5)
8.	Reusing plastic bag, bottle and paper etc., can reduce waste and solve natural sources.	290 (72.5)	42 (10.5)	68 (17.0)
9.*	Every kind of waste can be dispose by burning without effect to the environment.	153 (38.2)	196 (49.0)	51 (12.8)
10.	I am aware of the benefits of recycling the waste.	390 (97.5)	8 (2.0)	2 (0.5)

***Negative statement**

In order to summarize the knowledge towards contraception, level of knowledge towards household waste management among Myanmar migrants was shown in table 3. Half of the respondents (49.8%) had high knowledge and 36% had moderate knowledge. Only little percentage, 14.2% had low knowledge about household waste management.

Table 3: Level of knowledge towards household waste management (n = 400)

Level of knowledge	Frequency	Percentage
High knowledge (>16)	199	49.8
Moderate knowledge (12-16)	144	36.0
Low knowledge (<12)	57	14.2

4.3 Attitude towards household waste management

The attitude towards household waste management is the important determinant of practicing the household waste management. In order to know the attitude towards household waste management, all the respondents were asked about their opinion for agreeing or disagreeing the statements about household waste management.

The attitude part consisted of 8 questions and the questions consisted of both negative and positive aspects. For positive questions, the score was given 5 for strongly agree, 4 for agree, 3 for uncertain, 2 for disagree and 1 for strongly disagree. For negative questions, the score was given 5 for strongly disagree, 4 for disagree, 3 for uncertain, 2 for agree and 1 for strongly agree.

Table 4 shows the number and percentage of respondents‟ attitude towards household waste management. Majority of the respondents (83.7%) knew that waste is anything without value and one of the environmental problems that need to be solved rapidly. Almost of the respondents (98.3%) were aware that keeping household waste into the garbage container is responsibility of everybody at every household. On the other hand, 18.2% of the respondents thought that practice of household waste management is not important for them. Three quarters of the respondents (76%) knew that taking old plastic bags for shopping is better than using new ones. Otherwise, 63.4% of the respondents confused that making the old plastic bottles to drinking water bottles is not necessary for them.

Table 4: Number and percentage of respondents' attitude towards household waste management (n = 400)

No.	Statement	Frequency N (Percentage)				
		SA	A	U	D	SD
1.	Waste is anything without value and one of the environmental problems that need to be solved rapidly.	174 (43.5)	161 (40.2)	24 (6.0)	34 (8.5)	7 (1.8)
2.	I care about the household waste management (reduce, reuse, and recycle). For eg., reusing the plastic bags.	175 (43.8)	194 (48.5)	16 (4.0)	13 (3.2)	2 (0.5)

Table 4: (continued) Number and percentage of respondents' attitude towards household waste management (n = 400)

No.	Statement	Frequency N (Percentage)				
		SA	A	U	D	SD
3.	I think keeping household waste into the garbage container is responsibility of everybody at every household.	223 (55.8)	170 (42.5)	5 (1.2)	2 (0.5)	0
4.*	Practice of household waste management is not important for me.	33 (8.2)	40 (10.0)	30 (7.5)	184 (46.0)	113 (28.2)
5.	Buying fruits and vegetables without packaging is necessary for me.	70 (17.5)	167 (41.8)	52 (13.0)	88 (22.0)	23 (5.8)
6.	Taking old plastic bags for shopping, rather than using new ones is good for reducing the household waste.	99 (24.8)	205 (51.2)	37 (9.2)	56 (14.0)	3 (0.8)
7.*	Looking for packaging that can be easily re-used or recycled is wasting the time.	10 (2.5)	50 (12.5)	100 (25.0)	196 (49.0)	44 (11.0)
8.*	Making the old plastic bottles into drinking water bottles is not necessary for me.	10 (2.5)	60 (15.0)	76 (19.0)	181 (45.2)	73 (18.2)

***Negative statement**

In order to summarize the attitude towards household waste management, the distribution of attitude towards household waste management was shown in table 5. There were more than half of the respondents (61.2%) who had moderate attitude and 36.2% had good attitude while 2.5% were having the poor attitude.

Table 5: Level of attitude towards household waste management (n = 400)

Level of attitude	Frequency	Percentage
Good attitude (>32)	145	36.2
Moderate attitude (24-32)	245	61.2
Bad attitude (<24)	10	2.5

4.4 Practice towards household waste management

The details of the frequency and percentage distribution of the respondents practice regarding household waste management for each question was shown in table

6. Almost of the respondents threw away kitchen waste into the garbage bags and provided enough trash bins for their households but most of the respondents did not care about using of old plastic bags.

Table 6: Frequency and percentage distribution of respondents' practice towards household waste management (n = 400)

No.	Statement	Frequency	Percentage
1.	**I buy packaging fruits and vegetables.**		
	Everyday	165	41.2
	Always	120	30.0
	Sometimes	109	27.2
	Never	6	1.5
2.	**I provide enough trash bins for my household.**		
	Everyday	227	56.8
	Always	142	35.5
	Sometimes	31	7.8
	Never	0	0
3.	**I throw away kitchen waste into the garbage bags.**		
	Everyday	240	60.0
	Always	135	33.8
	Sometimes	25	6.2
	Never	0	0
4.	**I collect waste such as vegetables and fruits in a trash bag before litter it.**		
	Everyday	230	57.5
	Always	142	35.5
	Sometimes	28	7.0
	Never	0	0
5.	**I wrap leftover food tightly and throw away.**		
	Everyday	228	57.0
	Always	150	37.5
	Sometimes	22	5.5
	Never	0	0
6.	**I leave old plastic bag, unused paper and foam into trash bag.**		
	Everyday	64	16.0
	Always	174	43.5
	Sometimes	133	33.2
	Never	29	7.2

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Table 6: (continued) Frequency and percentage distribution of respondents' practice towards household waste management (n = 400)

No.	Statement	Frequency	Percentage
7.	**I reuse the old paper rather than buying new for reducing the household waste.**		
	Everyday	16	4.0
	Always	96	24.0
	Sometimes	222	55.5
	Never	66	16.5
8.	**I take old plastic bags shopping, rather than using new ones, or take a durable bag.**		
	Everyday	13	3.2
	Always	72	18.0
	Sometimes	192	48.0
	Never	123	30.8
9.	**I give my family member an advice how to manage household waste.**		
	Everyday	53	13.2
	Always	245	61.2
	Sometimes	93	23.2
	Never	9	2.2

In order to summarize the practice towards household waste management, the distribution of practice towards household waste management was shown in table 7. Half of the respondents (51.2%) had moderate practice and 32.2% had poor practice while 16.5% were having the good practice.

Table 7: Level of practice towards household waste management (n = 400)

Level of attitude	Frequency	Percentage
Good practice (> 21.6)	66	16.5
Moderate practice (16.2-21.6)	205	51.2
Poor practice (<16.2)	129	32.2

4.5 Access to the household waste management information and services in Muang District, Ranong Province

Table 8 reveals the access to the household waste management information and services in Muang District, Ranong Province.

In that District, 92.5% of the Myanmar migrants got the service that distributed information about household waste management but the rest (7.5%) did

not get it. Services from INGO reached half of the respondents (50%). 44.6% got the services from Thailand government and 5.4% learnt by themselves.

Among the respondents, there were 97.2% who wanted the household waste management information but the rest did not want. Half of the respondents (55.3%) who wanted the household waste information wanted the topics about waste separation.

Most of the respondents (90.2%) had public trash bins near their house and among them, over half (64.8%) always used public trash bins. Very few respondents (0.6%) never used them. The rest (34.6%) used them sometimes.

Almost respondents (95.8%) had household waste collecting system in their community and 67.9% of the respondents who had that system used always that system. 31.1% used sometimes and 1% never used that.

Nearly all of the respondents (98.2%) had scrap buyers in their community but among them, over half of the respondents (58.3%) sold their household waste such as magazine, old newspaper ant etc., sometimes to those scrap buyers. 28.5% never used scrap buyers and 13.2% used them always.

Table 8: Accessibility to the information and service (n = 400)

Statement	Frequency	Percentage
Have you ever get any information concerning household waste management here?		
Yes	370	92.5
No	30	7.5
Who provide the information on household waste management?		
Thai government	165	44.6
INGO	185	50.0
Learnt by self	20	5.4
other	0	0
Do you want household waste management information?	389	97.2
Want	11	2.8
Don't want		
Which topics about kitchen waste do you want?		
Waste separation	215	55.3
Waste collection	101	26.0
Proper waste disposal	72	18.5
other	1	0.3

Table 8: (continued) Accessibility to the information and service (n = 400)

Statement	Frequency	Percentage
Is there any public trash bin near your house?		
Yes	361	90.2
No	39	9.8
Do you use public trash bins?		
Always	234	64.8
Sometimes	125	34.6
Never	2	0.6
Is there any household waste collecting system in your community?		
Yes	383	95.8
No	17	4.2
Do you use household waste collecting system?		
Always	260	67.9
Sometimes	119	31.1
Never	4	1.0
Is there scrap buyer in your community?		
Yes	393	98.2
No	7	1.8
Do you sell old household things such as old newspaper, old toys and etc. to scrap buyers?		
Always	52	13.2
Sometimes	229	58.3
Never	112	28.5

4.6 Association between predisposing factors and practice towards household waste management

The association between socio demographic and socio economic characteristics and practice towards household waste management was shown in table 9. It showed that socio demographic and socio economic characteristics had statistically significant differences with Chi-square test (p-value < 0.05). We found that age (P-value < 0.001), sex (P-value = 0.001), occupation (P-value < 0.001), educational level (P-value = 0.024), family size (P-value = 0.016), duration of staying in recent household (P-value < 0.001), migrant status (P-value < 0.001) and monthly family income (P-value = 0.001) were related to practice towards household waste management.

Table 9: Association between socio demographic and socio economic characteristics and practice towards household waste management (n = 400)

Socio demographic and socio economic characteristics	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Age (years)					
18-25	102	23 (22.5%)	71 (69.6%)	8 (7.8%)	
26-35	155	43 (27.7%)	85 (54.8%)	27 (17.4%)	**0.001***
36-45	105	42 (40.0%)	39 (37.1%)	24 (22.9%)	
> 45	38	21 (55.3%)	10 (26.3%)	7 (18.4%)	
Sex					
Male	30	19 (63.3%)	10 (33.3%)	1 (3.3%)	**0.001***
Female	370	110 (29.7%)	195 (52.7%)	65 (17.6%)	
Occupation					
Housewife	221	78 (35.3%)	109 (49.3%)	34 (15.4%)	
Rubber and daily worker	92	22 (23.9%)	38 (41.3%)	32 (34.8%)	**0.001***
Fishery, Construction and other workers	87	29 (33.3)	58 (66.7%)	0 (0%)	
Educational level					
Non education and Primary	215	65 (30.2%)	108 (50.2%)	42 (19.5%)	**0.024***
Secondary	140	44 (31.4%)	72 (51.4%)	24 (17.1%)	
High school and University	45	20 (44.4%)	25 (55.6%)	0 (0%)	
Family size					
< 3	145	47 (32.4%)	72 (49.7%)	26 (17.9%)	
3-6	217	61 (28.1%)	118 (54.4%)	38 (17.5%)	**0.016***
> 6	38	21 (55.3%)	15 (39.5%)	2 (5.3%)	
Duration of staying at recent household					
< 1	58	18 (31%)	29 (50%)	11 (19%)	
1-3	157	52 (33.1%)	82 (52.2%)	23 (14.6%)	**0.001***
4.6	124	24 (19.4%)	69 (55.6%)	31 (25%)	
> 6	61	35 (57.4%)	25 (41%)	1 (1.6%)	

***Significant by Chi-square test**

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Table 9: (continued) Association between socio demographic and socio economic characteristics and practice towards household waste management (n = 400)

Socio demographic and socio economic characteristics	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Migrant status					
Register	372	109 (29.3%)	199 (53.5%)	64 (17.2%)	**0.001***
Unregister	28	20 (71.4%)	6 (21.4%)	2 (7.1%)	
Monthly family income					
2500-5000 bahts	140	43 (30.7%)	75 (53.6%)	22 (15.7%)	
5001-7500 bahts	102	24 (23.5%)	49 (48%)	29 (28.4%)	**0.001***
7501-10000 bahts	112	40 (35.7%)	57 (50.9%)	15 (13.4%)	
>10000 bahts	46	22 (47.8%)	24 (52.2%)	0 (0%)	

***Significant by Chi-square test**

Table 10 reveals association between knowledge level and practice towards household waste management. There was significant difference between knowledge level and practice towards household waste management (P-value < 0.001).

Table 10: Association between knowledge level and practice towards household waste management (n = 400)

Knowledge level towards household waste management	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Low knowledge	57	45 (78.9%)	10 (17.5%)	2 (3.5%)	
Moderate knowledge	144	57 (39.6%)	80 (55.6%)	7 (4.9%)	**0.001***
High knowledge	199	27 (13.6%)	115 (57.8%)	57 (28.6%)	

*** Significant by Chi-square test**

Association between attitude level and practice towards household waste management was shown in table 11. There was highly significant between attitude level and practice towards household waste management (P-value < 0.001).

Table 11: Association between attitude level and practice towards household waste management (n = 400)

Attitude level towards household waste management	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Poor and Moderate attitude	255	103 (40.4%)	117 (45.9%)	35 (13.7%)	**0.001***
Good attitude	145	26 (17.9%)	88 (60.7%)	31 (21.4%)	

*** Significant by Chi-square test**

4.7 Association between enabling factors and practice towards household waste management

There was highly significant difference between availability of household waste management information and practice towards household waste management (P-value = 0.001). This result was shown at table 12.

Table 12: Association between availability of household waste management information and practice towards household waste management (n = 400)

Availability of household waste management information	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Yes	370	110 (29.7%)	195 (52.7%)	65 (17.6%)	**0.001***
No	30	19 (63.3%)	10 (33.3%)	1 (3.3%)	

*** Significant by Chi-square test**

There was no significant difference between availability of public trash bins and practice towards household waste management (P-value = 0.798) as presented in table 13.

Table 13: Association between availability of public trash bins and practice towards household waste management (n =400)

Availability of public trash bins	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Yes	361	115 (31.9%)	187 (51.8%)	59 (16.3%)	**0.798**
No	39	14 (35.9%)	18 (46.2%)	7 (17.9%)	

4.8 Association between reinforcing factors and practice of household waste management information

There was no significant difference between availability of household waste collecting system and practice towards household waste management (P-value = 0.165). It was shown at table 14.

Table 14: Association between availability of household waste collecting system and practice towards household waste management (n = 400)

Availability of household waste collecting system	Total respondents N	Practice N (%)			P-value
		Bad Practice	Moderate Practice	Good Practice	
Yes	383	123 (32.1%)	194 (50.7%)	66 (17.2%)	**0.165**
No	17	6 (35.3%)	11 (64.7%)	0 (0%)	

There was significant difference between availability of scrap buyers and practice towards household waste management (P-value = 0.038). Table 15 reveals association between them.

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Table 15: Association between availability of scrap buyers and practice towards household waste management (n = 400)

Availability of scrap buyers	Total respondents N	Practice N (%)		P-value
		Bad Practice	Moderate and Good Practice	
Yes	393	124 (31.6%)	269 (68.4%)	**0.038***
No	7	5 (71.4%)	2 (28.6%)	

*** Significant by Fisher's Exact test**

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CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

This study was a cross-sectional study to explore the factors influencing practice of household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand by using self-administered complete questionnaires on socio-demographic, socio-economic, knowledge, attitude and practice towards household waste management.

Every year thousands of Myanmar people flee across the border to neighboring countries especially into Thailand (Labor Migration in Greater Mekong-Sub-region, 2006). The presence of large number of registered and unregistered Myanmar migrant people are the most political as well as health concern for Thailand. Although Ranong Province had quite a lot of Myanmar migrant people, there was no baseline data on the factors influencing practice towards household waste management used by Myanmar migrants. This study found a lot of opportunities and constraints in addressing the promoting practice towards household waste management of the Myanmar migrants. Furthermore, in one study, the results indicated that the major problems of environmental health among Myanmar communities were solid waste, wastewater management, housing sanitation and vector control (Min, et al., 2009).

Practice towards household waste management

The analysis found that although there were half of the respondents (49.8%) who had high knowledge level towards household waste management, there were still many respondents who just had moderate (36%) and low level (14.2%) of knowledge about household waste management in Muang District, Ranong Province. The result showed that 36.2% of the respondents had high level of attitude and 61.2% had moderate level of attitude while very few percentage (2.5%) of the respondents were

having low level of household waste management towards household waste management.

In spite of finding there were a lot of respondents who had high level of knowledge and attitude, the study found that most of the respondents (51.2%) in Muang District, Ranong Province had moderate level of practice towards household waste management which might not related to current situation that had public promotion to household waste management because both of Thai government and any kinds of INGOs supported all kinds of services about household waste management but they did not explain the affects which could not get any arousal of the public. The researcher found that there were a few respondents who had good practice level of household waste management in that community.

Predisposing factors influencing the practice towards household waste management

In this study, the percentage of the female respondents (92.5%) was more than percentage of male respondents (7.5%) because most of the housework has been worked by housewives. That is one of Myanmar cultures and one of the inclusion criteria in this study. Most of the respondents were dawe (42.8%) because Tanintharyi Division of Myanmar is the southern part of Myanmar and it has the border check point to enter Thailand and Dawei is the Capital of Tanintharyi Division (myanmar.net). Also, Most of the respondents were dawe (42.8%) because of forced relocation of villages and small towns particularly of ethnic groups by the military regime (Aung, 2008). And nearly half of the respondents (49%) could understand Thai language. That finding is compatible with the research done by Win at 2007 among Myanmar migrant workers at Ranong Province, Thailand (Win, 2007). Over half of the respondents (54.2%) had family size 3-6 people in their households. In the study of Makmattayan (Makmattayan, 2003), 26.2% of the respondents had monthly family income 5001-9000 Bahts but in this study, 35% had monthly family income 2500-5000 Baht. 39% of the respondents had been residing at their current households for 1-3years. Among 400 respondents, 56.8% had the smokers in their households although 66.8% were not having alcohol drinkers. Most of the respondents (94.2%)

had trash bins in their households. Among those trash bins, 70.6% had no cover while 29.4% were having covers. Among Myanmar migrants in Muang District, Ranong Province, leftover food was the most produced household waste (90.2%).

In this study, half of the respondents (49.8%) had high level of knowledge. Nearly half of the samplings (48%) had moderate level of knowledge in the study of factors related to solid waste sorting behavior among housewives in Bang Sue District, Bangkok (Makmattayan, 2003). The results were very compatible.

More than half (61.2%) of the respondents in this study had moderate level of attitude. This finding was compatible with the finding of the awareness level at the research "Factors related to solid waste sorting behavior among housewives in Bang Sue District, Bangkok" (Makmattayan, 2003). In that study, 66.7% of the respondents were at moderate level of awareness.

Enabling factors influencing the practice towards household waste management

In this study, almost all of the respondents (92.5%) had gotten information about practice towards household waste management from Thai government, various kinds of INGOs and by themselves. In that community, 90.2% of the samplings gave response that they had public trash bins near their households.

Reinforcing factors influencing the practice towards household waste management

Almost all (95.8%) of the respondents answered that they had household waste collecting system in their community and 98.2% of the respondents had scrap buyers in their community.

Factors related to the practice of household waste management

The factors influencing the practice towards household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand defined predisposing, enabling, and reinforcing factors are as follow:

Age

The study found that age of the respondents had significant difference with practice towards household waste management ($p < 0.001$).

Occupation

The study found that there was significant difference between occupation and practice towards household waste management ($p < 0.001$). Occupation showed personal social status, each type of work would have different duties so that occupant could have different knowledge, skill, and ability according to their work, which could affect their goals and behaviors (Makmattayan, 2003). But an occupation did not have any related in that study "Factors related to solid waste sorting behavior among housewives in Bang Sue District, Bangkok". That is the difference between Myanmar migrants and housewives who live in Bangkok. Myanmar migrants have been coming to Thailand for their lives and have to earn as much as they can. Although Myanmar migrants were in same community, they had different level of practice towards household waste management.

Educational level

In this study, there was significant difference between educational level and practice towards household waste management ($p = 0.024$). But the study of Makmattayan (2003) showed that there was no relationship between educational level and practice about waste. Most of the Myanmar people had finished primary school but there were a lot of service providers in Muang District such as Thai government and many kinds of INGOs that supported a lot of services such as public trash bins, household waste collecting system and information about practice of household waste management. Wiphaphen Jiasakul (1993) studied "Solid waste disposing behavior among people in Bangkok Metropolis" was related with educational level of the samplings. So, Suchart Prasithirathasinthu (1993) said "Educational process could help changing attitude and behavior also" in his research.

Family size

In this study, there was statistically significant difference between the number of people in the family and practice towards household waste management ($p = 0.016$). In most of the Myanmar families, all of the house works were done by the housewives. Even though there was no significant difference between family size and practice in the study of Makmattayan (2003), Arom Sapharnsiht (2000) studied "Solid waste disposal and management among people in Hinlard Sub district, Nakornnayok Province", found that people lived in these households were big family size, acted properly about solid waste management better than people in households that were small family size significantly in statistic.

Monthly family income

In this study, there was relationship between monthly family income and practice towards household waste management ($p = 0.001$). Makmattayan (2003) said different income could make different levels of attitude and behavior. In the study of Suwimol Phakdiphibool (1992) "Factors affecting solid waste disposal among the housewives in Bangkok Metropolis", housewives had different income had significant difference statistically at level 0.05.

Duration of staying at recent household

In general, the longer people lived in community, the more they loved, felt attachment, and familiar with community. They might behave according to those local rules. In this study, there was significant difference between duration of staying at recent household and practice towards household waste management ($p < 0.001$). This finding was opposite to the study conducted among housewives in Bang Sue District, Bangkok (Makmattayan, 2003).

Knowledge towards household waste management

Enabling knowledge would create behavior and actions. In this study, there was significant difference between knowledge and practice towards household waste management ($p < 0.001$). This result could be confirmed by the study "Factors related

to solid waste sorting behavior among housewives in Bang Sue District, Bangkok" (Makmattayan, 2003). Likewise, in the study related to Aarom Saphansithi (2000), knowledge had significant difference with solid waste disposal and management.

Attitude towards household waste management

In this study, there was significant difference between attitude and practice towards household waste management ($p < 0.001$). This finding was compatible with the result of the study of Makmattayan (2003).

Availability of household waste management information

Availability of household waste management information is one of the important factors influencing practice towards household waste management. In this study, there was highly significant difference between availability of household waste management information and practice towards household waste management ($p = 0.001$). This finding was analogous to a study of Makmattayan (2003).

Availability of scrap buyers

The previous study of Makmattayan (2003) found that the scrap buyers related to solid waste sorting behavior significantly in statistics at level 0.001. Scrap buyers promoted practice of household waste management among Myanmar migrants and increased their earning so that scrap buyers related to practice towards household waste management. In this study, there was also significant difference between availability of scrap buyers and practice towards household waste management like the previous study ($p = 0.038$).

5.2 Conclusion

The data from this study was collected in Muang District, Ranong Province in March, 2010 by using structure questionnaires. The sample size for this study was 400 Myanmar migrants. The main purpose of this study was to identify the factors

influencing the practice of household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand.

The statistical package for social science (SPSS) were using for analysis of the data of this study. Chi-square test and Fisher Exact test were used for relationship between independent variables and dependent variable, practice towards household waste management.

All the respondents in this study were in the age ranged from 18 to 65 years and majority of the respondents were distributed in the age group of 26 to 35 years. Most of them were married, Dawe and female. Almost all of them were Buddhist and more than half of the respondents in this study came to Thailand with primary educational attainment from home country, Myanmar. More than half of the respondents were housewives. In this study, total monthly family income ranged from 2500 Baht to 20000 Baht although one third of them had income 2500- 5000 Baht per month. Nearly half of the respondents in this study had been stayed in Thailand for 3-6 years and also nearly half of the respondents had been stayed in their recent households for 1-3 years and nearly all of the respondents were staying as registered migrant. Although they had been staying in Thailand for years, one third of them cannot communicate at all and nearly half of them can communicate only basically.

In terms of knowledge and attitude towards household waste management, half of the respondents had high knowledge and only a few respondents had low level of knowledge about household waste management. More than half of the respondents had moderate level of attitude towards household waste management.

Regarding to the accessibility to the household waste management information and service, almost all of the respondents could get the information from local Thai authority, and INGOs. Likewise, there were a lot of public trash bins in that district. There was also household waste collecting system in that community and scrap buyers were there.

The study reported that there were many factors influencing the practice of household waste management among Myanmar migrants in Muang District, Ranong Province, Thailand. Among predisposing factors, there are significant differences between age, sex, occupation, educational level, family size, duration of staying in recent household, migrant status, monthly family income, knowledge and attitude

towards household waste management and practice towards household waste management. Regarding the enabling factors, there was significant difference between availability of household waste information and practice towards household waste management. Likewise, there was significant difference between availability of scrap buyers and practice towards household waste management in terms of reinforcing factors.

5.3 Recommendation

Recommendation for policy makers

Practice towards household waste management is one of the important factors influencing the quality of life of Myanmar migrants and environmental health of that community. **Local community-based organizations should be developed for migrants**, managed by migrants, and serve migrants in order to improve their quality of life and protect their environmental health by promoting the community participation. Muang District Health Office has a lot of Myanmar migrant health volunteers and they can be used for such local community-based organizations as liaison persons between Myanmar migrants and Thai local authorities because they can use both Burmese and Thai languages fluently.

As found from this study, there is a gap between practice and knowledge of household waste management. So, provision of adequate information about variety of household waste management is still necessary in this community. For that matter, **IEC materials should be produced and introduced to the community of Myanmar migrants and BCC (behavior change communication) programs are very essential for Myanmar migrants.**

For IEC materials, simple manual in Myanmar language should be provided because there are only few people in that community who can read and write Thai language according to the result of this study. In this manual, how to do with household waste should be included. This manual should be distributed through leaders of Burmese community, Thai local authority and INGOs.

People in community should be more involved with the local government organizations and INGOs when solving certain problems about waste management.

Many households of the respondents in this study had rodents. That is one of the problems for the environmental health and health of Myanmar migrants. So, **rodent control should be provided by Thai government**. And removing of the stock pile of garbage in every community should be done by every authority for concerning health for Myanmar migrants.

In fact, for not only practice towards household waste management among Myanmar migrants but also environmental health for that community, **BCC (behavior change communication) and community participation of all authorities and Myanmar migrants should be the main strategy to be carried out**, indeed.

Recommendation for further studies

In this study, the associations were done only with Chi-square test and other studies need to be done with multiple logistic regressions for more associations because Chi-square can be used for measuring that there is association or not and it cannot show the direction of the association.

This study was done with only 400 Myanmar migrants in Muang District, Ranong Province so that it cannot be the figure for the whole migrant people in Thailand. **Other studies about household waste management should be done at other provinces in Thailand.**

The health education program targeting to age, sex and occupation including community participation should be emphasized in order to improve practice towards household waste management. This study was emphasized on practice towards household waste management by quantitative method so that **further qualitative studies should be carried out** in order to understand more on their practice towards household waste management from all perspectives in Ranong Province.

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APPENDICES

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APPENDIX A

INFORMED CONSENT FORM

I who have signed here below ……agree to participate in this research project.

I have been informed about rational and objective(s) of the project and understand the study is to assess the practice of the household waste management among Myanmar migrants. This study information will be useful for the environmental sanitation and health and also for the future household waste management.

I **clearly understand with satisfaction and** willingly **agree** to participate in this research and response to the questionnaires asked which will take about thirty minutes to complete. There are no risks for me to participate in the study.

I have **the right to withdraw** from this research project at any time as wished, with no need to give any reason. Either my withdrawal or my refusal to answer certain questions **will not have any negative impact upon me.**

Researcher has guaranteed that procedure(s) which will be acted upon me would be exactly the same as indicated in the information. Any personal information will be **kept confidential.** Any personal information which could be able to identify myself or part of my family will not appear in the report.

Sign ……

(……..……)

Participant

Date ……

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APPENDIX B

QUESTIONNAIRE

Questionnaire for factors influencing the practice of household waste management among Myanmar Migrants in Muang District, Ranong Province, Thailand

Identify No. _____ **Interviewer _____**

Date _____/_____/_____

Part A: General information and household information

1. How old are you now?

   ---------- Years

2. Gender:

   1. [ ] Male 2. [ ] Female

3. Ethnicity:

   1. [ ] Burmese
   2. [ ] Karen
   3. [ ] Mon
   4. [ ] Dawei
   5. [ ] Rakhine
   6. [ ] others (specify) ----------

4. Religion:

   1. [ ] Buddhist
   2. [ ] Christian
   3. [ ] Islam
   4. [ ] others (specify) ----------

5. Marital status:

   1. [ ] married
   2. [ ] separated
   3. [ ] co-habit marriage
   4. [ ] divorced/separate
   5. [ ] single
   6. [ ] widowed
   7. [ ] others (specify) ----------

6. Education status:

   1. [ ] never go to school

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2. [ ] primary education (1-4 years of school)
3. [ ] secondary education (5-8 years of school)
4. [ ] high school level (9-10 years of school)
5. [ ] higher education (university)
6. [ ] others (specify) ----------

7. Current occupation:

1. [ ] housewife
2. [ ] rubber plantation worker
3. [ ] general worker
4. [ ] fishery worker
5. [ ] construction worker
6. [ ] others (please specify) ----------

8. Migrant status

1. [ ] register
2. [ ] unregister

9. How long have you been living in Thailand?

---------- Months/Years

10. How long have you been living in current household?

---------- Months/Years

11. What is your average monthly household income?

---------- (baht)

12. What is your income-expenditure balance?

1. [ ] excess
2. [ ] enough
3. [ ] not enough

13. What is about your Thai language skill? (May check more than one)

1. [ ] Cannot communicate at all
2. [ ] Can communicate basically
3. [ ] Can speak Thai language fluently but cannot read and write
4. [ ] Fluently in Thai language

14. Is there smoke in your household?

1. [ ] Yes
2. [ ] No (If no, answer question no. 16)

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15. How do you keep the garbage from smoking?

1. [ ] throw away outside household 3. [ ] others (please specify) ----------
2. [ ] keep in trash bin

16. Do you currently drink alcohol?

1. [ ] Yes 2. [ ] No

17. Which kind of house do you live currently?

1. [ ] Rent house with one family
2. [ ] Partitioned shared room provided by the employers
3. [ ] others (please specify) ----------

18. How many people are staying in your house?

---

19. How many bedrooms are there in your house?

---

20. How many doors/windows are there in your house?

---------- door(s) / ---------- window(s)

21. Do you have latrine?

1. [ ] Yes 2. [ ] No (If no, answer question no. 23)

22. What type of latrine are you using?

1. [ ] Attached inside the house
2. [ ] Outside the house and sharing with the others
3. [ ] Others (please specify) ----------

23. Do you have trash bin in your house?

1. [ ] Yes 2. [ ] No (If no, answer question no.28)

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24. How many trash bins/garbage containers are there in your house?

    ----

25. What kinds of trash bins/garbage containers do you use in your house?

    1. [ ] with lids (cover)
    2. [ ] without lids (without cover)

26. How long do you use your trash bins? Or when do you change the new trash bins?

    1. [ ] 3 months
    2. [ ] 6 months
    3. [ ] 1 year
    3. [ ] Others (please specify) ----------

27. How often do you empty your trash bins? Or how often do you throw away trash from trash bins?

    1. [ ] every day
    2. [ ] ever 3 days
    3. [ ] every 1 week
    3. [ ] Others (please specify) ----------

28. Do you see any rodents in your house?

    1. [ ] Yes 2. [ ] No

29. Is there any family who is feeling diseases occurred by household waste such as diarrhea and dengue hemorrhage fever?

    1. [ ] Yes 2. [ ] No

30. Is there a stockpile of garbage near your house?

    1. [ ] Yes 2. [ ] No

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Instruction Please mark in the box that you think is the most correct.

31. What kinds of the household wastes (kitchen waste) are mostly produced from your house?

	Kind of household waste	Yes	No
1.	Leftover food		
2.	Broken glass and bottles		
3.	Unused paper/ card board		
4.	Foam container/ food container		
5.	Old plastic bags and bottles		

Part B: Knowledge towards the household waste management

Instruction Please mark in the box that you think is the most correct.

	Statement	True	False	Not sure
1.	Waste paper, cloths and nappies, a piece of metal and wood, scrap iron and scrap can are not rubbish.			
2.	Kitchen waste – left over food, vegetable and fruit is garbage.			
3.	Household waste is one of the problems that polluted solid, water and air.			
4.	Burning foam and plastic is not the best way.			
5.	Dropping leftover food into the river can make decaying the water because it is aquatic animal food.			
6.	Plastic bags and plastic bottles cannot be degraded naturally.			
7.	Food waste, vegetable and fruits are germ culture sources.			
8.	Reusing plastic bag, bottle and paper etc., can reduce waste and solve natural sources.			
9.	Every kind of waste can be dispose by burning without effect to the environment.			
10.	I am aware of the benefits of household waste management.			

Part C: Attitude towards the household waste management

Instruction Please mark in the box for your opinion about attitude of household waste management

How do you think about following?

SA = strongly agree
A = agree
UC = uncertain
D = disagree
SD = strongly disagree

	Statement	SA	A	UC	D	SD
1.	Waste is anything without value and one of the environmental problems that need to be solved rapidly.					
2.	I care about the household waste management (reduce, reuse, and recycle). For eg., reusing the plastic bags.					
3.	I think keeping household waste into the garbage container is responsibility of everybody at every household.					
4.	Practice of household waste management is not important for me.					
5.	Buying fruits and vegetables without packaging is necessary for me.					
6.	Taking old plastic bags shopping, rather than using new ones is good for reducing the household waste.					
7.	Looking for packaging that can be easily re-used or recycled is wasting the time.					
8.	Making the old plastic bottles into drinking water bottles is not necessary for me.					

Part D: Practice towards the household waste management

Instruction Please mark in the box that you think is the most correct.

	Statement	Frequency			
		Everyday 7 days/week	**Always 4-6 days/week**	**Sometimes 1-3 days/week**	**Never**
1.	I buy packaging fruits and vegetables.				
2.	I provide enough trash bins for my household.				
3.	I throw away kitchen waste into the garbage bags.				
4.	I collect waste such as vegetables and fruits in a trash bag before litter it.				
5.	I wrap leftover food tightly and throw away.				
6.	I leave old plastic bag, unused paper and foam into trash bag.				
7.	I reuse the old paper rather than buying new for reducing the household waste.				
8.	I take old plastic bags shopping, rather than using new ones, or take a durable bag.				
9.	I give my family member an advice how to manage household waste.				

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Part E: Access to the household waste management information and services

1. Have you ever get any information concerning household waste management here?

   1. [ ] Yes 2. [ ] No (if no, answer question no. 3)

2. Who provide the information on household waste management?

   1. [ ] Thai authority
   2. [ ] NGOs
   3. [ ] learnt by yourself
   4. [ ] Others (please specify) ----------

3. Do you want household waste management information?

   1. [ ] Yes 2. [ ] No (if no, answer question no. 5)

4. Which topics about kitchen waste do you want?

   1. [ ] Waste separation
   2. [ ] Waste collection
   3. [ ] Proper waste disposal
   4. [ ] Others (please specify) ----------

5. Is there any public trash bin near your house?

   1. [ ] Yes 2. [ ] No (if no, answer question no.7)

6. Do you use public trash bins?

   1. [ ] always
   2. [ ] sometimes
   3. [ ] never

7. Is there any household waste collecting system in your community?

   1. [ ] Yes 2. [ ] No (if no, answer question no.9)

8. Do you use household waste collecting system?

   1. [ ] always
   2. [ ] sometimes
   3. [ ] never

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9. Is there scrap buyer in your community?

   1. [ ] Yes 2. [ ] No

10. Do you sell old household things such as old newspaper, old toys and etc. to scrap buyers?

    1. [ ] always
    2. [ ] sometimes
    3. [ ] never

“Thank you so much for taking time to answer”

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APPENDIX C

SCHEDULE OF ACTIVITIES

Work plan	Time period (month)							
	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Literature review								
Proposal writing and submission								
Proposal exam								
Ethical consideration from college								
Pretest questionnaires								
Field preparation and data collection								
Data analysis								
Thesis and report writing								
Thesis exam and final submission								

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APPENDIX D

ADMINISTRATION COST

#	Activities/ items	Units	Price (baht)	Unit (number)	Total budget (baht)
1.	**Pre-testing**				
	- Photocopy	Quest.	7	30	210
	- Stationery	Set	200/set	1	200
2.	**Data Collection**				
	- Photocopy Quest.	Quest.	0.5/page	7 x 422	2,954
	- Souvenir for respondent	Set	422/Set	10	4,220
	- Accommodation	Person	300/p/d	2 pr x 14day	8,400
	- Transportation cost	Trip/day	300/p/d	2 pr x 14day	8,400
	- Data Processing	Person	200/p/d	2 pr x 14day	5,600
	DATA COLLECTING PROCESS			**SUBTOTAL**	**29,984**
3.	**Document Printing**				
	- Paper + Printing	Page	5/page	800 pages	4,000
	- Photocopy	Page	0.5/page	12 x 400	2,400
	(exam+finalsubmit)	Set	200/set	1 set	200
	- Stationery	Set	150/set	6 set	900
	- Binding Paper (exam)	Set	200/set	6 set	1,200
	- Binding Paper (submit)				
	THESIS DOCUMENT PROCESS			**SUBTOTAL**	8,700
				GRAND TOTAL	**38,684**

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APPENDIX E

PICTURES SHOWING PRACTICE OF HOUSEHOLD WASTE MANAGEMENT AMONG MYANMAR MIGRANTS

Figure 2: Pictures showing practice towards household waste management among Myanmar migrants

VITAE

Name - Mr. Ye Hein Naing

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Email - yeheinnaing@gmail.com

Education Background - M.B., B.S (2008),

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Work Experience

1. **House Officer (Internship)** - 1.1.2007 to 31.12.2007

   Hospitals • Thingangyun Sanpya General Hospital

2. **Mobile Clinic Program Officer** – 10.5.2008 to 10.5.2009

   Organization • Merlin Myanmar (Ayeyarwaddy Division, Laputta Township)

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