



CHAPTER 1

INTRODUCTION

1.1 General

The estimation of solid waste generation and composition are the basis of design and operation of the functional elements associated with the management of solid waste. Because these information is used in :

- Selecting volume, type, and number of solid waste container for storage.
- Selecting volume, type, and number of collection vehicle and designing of waste collection routes.
- Evaluating material recovery and designing of material recovery facilities (MRF_s)
- Selecting method of pretreating wastes
- Estimating future generation rate and composition
- Designing final disposal facilities.

For these reasons, accurate information of solid waste generation and composition are considered very important.

Since the generation of municipal solid waste depend on several parameters such as populations, income level, habit and other activities in the city, the solid waste management system needs to be designed to be flexible in order to accommodate these variables.

In this research, it is proposed to find out the generation rate and the composition of municipal solid waste at generation sources in Khon Kaen Province of Thailand, and to investigate the factors that affect the waste generation. The study area was selected because of the large quantity of residential and commercial solid wastes generated, and it has many characteristics of typical large municipal in Thailand.

1.2 Objective of the Study

1) To determine municipal solid waste generation rates and composition in Khon Kaen Municipality.

2) To find out the factors affecting municipal solid waste generation rate in Khon Kaen Municipality.

3) To develop mathematical models to estimate municipal solid waste generation rate for the application in Thailand.

1.3 Scope and Limitation of the Study

The scope of this study was limited to the municipality of Khon Kaen which is a regional city in Northeast of Thailand. The sources of solid waste generation covered in this study are classified as follows :

- Residential Area
- Commercial Area : these sources include factory, store, office, hotel, restaurant, theater, market and shopping complex.
- Institutional Area : these sources include hospital, government office and school.
- Municipal Service Area : these sources include street sweeping and park.

This study consists of a field survey, laboratory analysis and data analysis by computer. For determining empirical relationships, multiple linear regression using Statistical Package for Social Science (SPSS) software package.

1.4 Anticipated Benefits

Information and mathematical models of this study will be used to guide for the study of municipal solid waste generation and composition. Furthermore, these models can be used for the application in Municipal Solid Waste Management and Planning in Thailand.