Chapter 17
Current Situation and Challenges of Waste Management in Thailand

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ABSTRACT

Thailand covers an area of 513,120 km^2 and is located in the southern region of the continent of Asia. The total population was around 67.2 million in 2016. With increasing population growth, city expansion and rapid industrialization, generated 27.37 tonnes of waste in 2017. Thailand government has recognized problems associated with solid, hazardous, and electronic waste generation and issued policies/regulations to support the waste management system. Initiatives such as roadmap for municipal and hazardous waste, national master plan on cleaner production and cleaner technology, and national integrated e-waste management strategy have been introduced to improve the waste management system. However, there are many issues preventing the implementation of a successful waste management system in Thailand. Society has suffered from waste mismanagement because of lack of awareness and realistically applicable technology. There are also weaknesses in the processes of public participation, policy implementation, and institutional support.

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INTRODUCTION

Thailand covers an area of 513,120 km^2 and is located in the southern region of the continent of Asia. The total population was about 67.2 million in 2016, of which 55.4 percent resided in a non-municipal area and 44.6 percent in a municipal area (NSO, 2016). Administratively, Thailand is divided into 76 provinces, 4 regions (northern, northeast, central, southern), and the Bangkok metropolitan area. Structure of Thailand's economy is characterized by the service sector that accounts for 61.5%, following by manufacturing 30.2% and agriculture 8.3%. The Gross National Product (GNP) per capita was 205,339 Baht (6437 USD) for 2016 (BOT, 2018). For 2017, the total gross domestic product (GDP) was 455.3 billion US$, and the GDP per capita was 6,730.2 US$ (NESDC, 2018). Keeping up with the population growth and city expansion, the solid waste generation in Thailand increased rapidly from 2008 to 2017. The Thailand Government in recognizing the problem of solid waste released policies and campaigns to support the waste management system, such as The National 3R Strategic Plan, Roadmap for Municipal and Hazardous Waste in 2014, and the National Solid Waste Management Master Plan (2016 - 2021). However, there are many issues preventing the implementation of a successful solid waste management system in Thailand. In 2017, 7.17 million tonnes of municipal solid waste (MSW) were still improperly disposed of, such as by open dumping or open burning in waste disposal sites (PCD, 2018). This chapter reviews the existing situation and highlights the challenges, with successful case studies of the waste management system in Thailand. Hazardous waste, e-waste issues, and impact of the MSW on Global warming are also discussed in this chapter.

Definition of Solid Waste

In Thai law, waste means residues in a solid, liquid, or gas state generated daily from any sectors, or any other hazardous substances [National Environmental Quality Act, B.E. 2535 (1992)]. Solid waste can be divided into 4 categories, MSW, organic waste, hazardous waste, and electronic waste, which are defined in the Thailand regulations as follows:

MSW means solid waste generated from municipal activities such as from residences, businesses, marketplaces, and institutes. The waste can be organic (food, leaf, grass, etc.), recyclable (glass, paper, metal, etc.), or general waste (wood, fabric), excepting municipal hazardous waste [Pollution Control Department (PCD), Ministry of Natural Resources and Environment (MNRE), B.E. 2550 (2007)].

Electronic waste includes any parts or accessories of electrical and electronic equipment, which reach the end of their useful life or become deteriorated or obsolete [PCD, MNRE, B.E. 2550 (2007)].

Hazardous waste is waste that contains or is contaminated with hazardous substances or exhibits hazardous characteristics, including being flammable, corrosive, reactive, toxic, or having specified components [National Environmental Quality Act, B.E. 2535 (1992)].

Waste Management System in Thailand

In general, the waste management system in Thailand comprises the collection, transportation, treatment, and disposal of waste. Waste is collected directly from households by trucks and indirectly at fixed stations at a frequency of 2 times per week up to every day, relying on the amount of waste generated in each area. The waste collection system in urban areas is generally better and more efficient than in rural areas. As reported by Thailand's PCD in 2016, Nonthaburi, Samut Songkhram, Phuket, and Bangkok are