

Municipal solid waste management in Thailand and disposal emission inventory

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Abstract The increasing municipal solid waste (MSW) generation along with the high fraction of organic waste and a common disposal of open dumping is the current scenario in many areas in Thailand. As a response to this problem, the country's Pollution Control Department (PCD) aims to reduce the MSW generation rate to less than 1 kg/capita/day, increase the collection efficiency, and improve the recovery of recyclables. For many years, more than 60% of the solid waste disposal system in Thailand has been carried out by open dumping. According to the survey conducted by this study, in 2004 there were 425 disposal sites (95 landfills; 330 open dumps) in Thailand and an estimated methane emission of 115.4 Gg/year was generated based on this practice. It has been estimated that the anticipated methane emission in Thailand will rise from 115.4 Gg/year to 118.5 Gg/year if the largest open dumpsites in

provinces with no existing landfill are upgraded to sanitary landfill; and it will increase to 193.5 Gg/year if the existing sanitary landfill is upgraded to integrated waste management facilities. Moreover, Bangkok metropolitan have the highest methane emission (54.83 Gg/year) among all the regions in Thailand. The methane emission forecast of 339 Gg/year by 2020 (based on LandGEM methodology) provides a stimulus to create a comprehensive plan to capture and utilize methane as an energy source.

Keywords Landfill · Methane emission · Municipal solid waste · Open dump · Recycling

Introduction

Thailand, one of the developing countries in Southeast Asia with a current population of 65 million, has witnessed an accumulating problem on solid waste management and disposal. The country's municipal solid waste (MSW) generation showed an increasing trend parallel to the development of economic condition, urbanization, and rapid growth of population (Visvanathan et al. 2004). Huge amounts of waste are generated daily and its management is a considerable task that encompasses various strategies, such as recycling and reuse, efficient waste collection and disposal system, financial capability, and effective participation of government, public and private sectors.

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