Thesis Title	Studies of methane generation and utilization potential from MSW landfill in Thailand.
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Abstract

In this research, the potential of methane generation from MSW landfill was investigated. Landfill sites from 21 districts in 16 provinces were selected which represents 14.7 % of total district landfill sites in Thailand. Methane generation was evaluated using the potential for methane generation (Lo) and the decay constant for methane generation rate (k) given by LAEEM Model which was developed by the USEPA compared to those calculated by measurement of methane emission from selected landfill sites. Lo and k given by LAEEM are 169.9 m^3/ton and 0.05 1/yr whereas the average Lo calculated from all district landfill sites in Thailand and Bangkok were 121.4 and 103.7 m^3/ton, and the calculated k from landfill sites at Nakonpatom, Huahin and Supanburi were 0.06, 0.03 and 0.02 1/yr respectively. The amounts of methane generation from landfill sites in this country estimated using LAEEM model are 22.8, 36.3 and 138.5 Gg in the year 1990, 1994 and 2010 respectively. It was found that the amounts of methane generation estimated using LAEEM are higher than that determined by measurement from the landfill by 29.2, 29.3 and 29.5 % respectively.

Geographic information system was employed to identify the possibility of producing electricity from methane gas using IDRISI Software. The amounts of methane generated from landfill sites around the country were overlaid. It is noted that there are 8 areas which are capable of producing electricity from methane gas. These areas are Chiengmai, Lopburi, Nakonratchasrima, Nontaburi, Chonburi, Nakonsritammarat Songkhla and Bangkok. It is estimated that the total electricity generation capacity from these 8 potential areas during the