

# Design and construction of engineered municipal solid waste landfills in Thailand

A research effort to document and evaluate the standard of practice of municipal solid waste (MSW) landfill disposal in Thailand was conducted. A survey of 114 MSW disposal sites indicates that over 50% of the sites are considered to be open dumps, although operational improvements are being implemented through the use of soil covers. Ten of 12 engineered MSW landfills located in Thailand, designed by both the public and private sector within the last 4 years, were evaluated for design methods and construction practices. Results indicate that the current practice of engineered MSW landfill design in Thailand is approaching internationally accepted standards. However, there are a number of ways that the current practice of MSW landfill design could be improved, particularly in the development of improved specifications for the construction of compacted clay liners.

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**Keywords** Landfills; liners; municipal solid waste; policy; settlement; slope stability; Thailand

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Received 1 June 1999, accepted in revised form 10 March 2000

## Introduction

Thailand, as a rapidly developing country in south-east Asia, is struggling to find a balance between economic growth and environmental protection. One area where this struggle is most evident is in the disposal of municipal solid waste (MSW). Until recently, open dumping was the standard of practice of solid waste disposal, even in large metropolitan areas such as Bangkok. However, as the country realizes that sustainable economic growth must include environmental protection, engineered landfills are being developed with the aim of efficient disposal of solid waste with minimum impact on the environment.

In fact, a MSW management plan was developed for the

entire country in 1997 (National Economic & Social Development Board 1997). The two primary points of the plan were (a) that the government encouraged provincial authorities to seek appropriate plots to serve as long-term sites for MSW landfill disposal and to designate these appropriate areas as such in urban plans; and (b) that appropriate criteria must be established for MSW management, which cover the processes of collection, transportation and hygienic disposal. In addition, emphasis should be placed on the processes of reducing, re-using and recycling waste.

However, the sites selected for MSW landfills are often not ideal for locating a waste disposal facility. Owing to rapid growth, the sites selected are often those passed over for