

University of Strathclyde  
David Livingstone Centre for Sustainability

Department of Civil Engineering

ANALYSING SUSTAINABILITY OF SOLID  
WASTE MANAGEMENT IN MALAYSIA USING  
ECOLOGICAL MODERNISATION  
PERSPECTIVE

by

SITI AISYAH SAAT

A thesis presented in fulfilment of the requirement for  
The degree of Doctor of Philosophy  
2012



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Date:

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## Abstract

The thesis addresses the evolution, nature and appropriateness of the national waste management system in Malaysia in terms of its capability to meet sustainability goals. This requires a investigative methodology that encompasses the policies, processes, scales and actors the comprise the national waste management system.

It does this by adopting the concept of ecological modernisation as a reference for analysing the policy and institutional structures that control waste management and sustainability policy. It examines the relevance the institutional dimension of the ecological modernisation theory to the Malaysian context and non-western countries generally, and to the particular characteristics of the waste management system. For effective waste management and economic growth there is need for assessment of not just waste quantities and composition but also of the flow of resources and waste through the joint economic and environment systems. To this end, the thesis applies Material Flow Analysis to the Malaysian context seeking to identify more precise understandings of the processes that give rise to waste outputs. Discussion focuses on whether a Material Flow Analysis (MFA) tool is relevant as an assessment and for analysing sustainable solid waste management in Malaysia.

The nature of waste generation, flow and management is outlined and found to be complex. The methodology reflects this complexity by investigating the institutional organisations and by testing the understandings and attitudes to sustainability and action of all the actors in the waste management system namely policy makers, local authorities and individuals. It found a varied and inconsistent understanding which is set against an increasing level of waste generation and a shortage of disposal and handling facilities. Waste management within current understandings and institutional systems is found to be intractable.

Conclusions are made that the national waste management system in Malaysia lacks clarity of strategic policy and management, measurement gaps are identified and aspects of institutional inertia are found which combine to frustrate the sustainability goal. Ecological Modernization is found to be a partially satisfactory approach to explaining the policy and institutional organisations but it does not in Malaysia provide answers for future policy intervention or indeed readily identify the direction of previous policy development. Material Flow Analysis (MFA) tool is relevant as a sustainability assessment and provide a platform for analysing sustainable solid waste management in Malaysia using institutional dimension of Ecological Modernisation Theory but requires integration into the social and institutional processes.