

## CHAPTER 6 : CONCLUSIONS

### 6.1 Summary of Main Findings

This policy for Integrated Solid Waste Management in Malaysia has been formulated based on reviewing the legislative and institutional framework, international trends in solid waste management and current practice of solid waste management in Malaysia. Consequently, key issues related to solid waste management that would need to be addressed in a policy document have been derived. These key issues were further analyzed within a policy framework process to derive policy instruments and subsequently seven main policy recommendations were formulated. These findings are summarized below :-

Areas	Summary of Findings
<b>Legislative Framework</b>	<ul style="list-style-type: none"> <li>▪ Currently there is no comprehensive legislation on solid waste management in Malaysia.</li> <li>▪ Existing legal framework is based on using 4 main legislation, which are the Local Government Act, 1976, Environmental Quality Act, 1974, Streets, Drainage &amp; Building Act 1974 and the Town &amp; Country Planning Act, 1976.</li> <li>▪ A Solid Waste Act is proposed, which will mean that the above 4 legislation will have to be amended.</li> </ul>
<b>Institutional Framework</b>	<ul style="list-style-type: none"> <li>▪ Currently there is no single agency responsible for solid waste management.</li> <li>▪ Solid waste management comes under the State government under the State Local Government Division.</li> <li>▪ The main agencies implementing solid waste management on the ground are the Local Authorities (LAs).</li> <li>▪ The Local Government Department in the Ministry of Housing and Local Government provides policy and technical guidance to the LAs.</li> <li>▪ Other related agencies in solid waste management are the Department of Environment and Town &amp; Country Planning Department.</li> <li>▪ Proposed Solid Waste Act is expected to transfer responsibility of solid waste management from the State to the Federal government.</li> </ul>

## CHAPTER 6 : CONCLUSIONS

Areas	Summary of Findings
<b>Institutional Framework (continued)</b>	<ul style="list-style-type: none"> <li>▪ A Department of Solid Waste Management is expected to be established under the proposed Solid Waste Act.</li> <li>▪ Solid waste management is expected to be fully privatized in 2001 where 4 private waste managers are expected to be given a 20 year concessionaire period for management.</li> </ul>
<b>Existing Practice</b>	<ul style="list-style-type: none"> <li>▪ Solid waste generation for 2000 is estimated at 3.9 million tonnes with 0.9 kg per capita generation per day.</li> <li>▪ Waste composition is estimated to be 50% organic material.</li> <li>▪ Waste separation at source occurs only in MPPJ in Malaysia.</li> <li>▪ Waste treatment method is estimated at 97% landfilling and 3% recycling.</li> <li>▪ Amount of recycling material estimated at Kuala Lumpur is 22% of the total waste and is valued at RM 55,000 per day.</li> <li>▪ Draft Concession Agreement between the government and the private waste managers have targeted in 2020 to achieve 22% recycling, 8% composting, 17% incineration &amp; 53% landfilling.</li> <li>▪ Currently it is estimated there are 177 landfill sites in Malaysia with 51% of them comprising of open dumps.</li> <li>▪ Average cost of landfilling is RM7.20 per tonne.</li> <li>▪ The most advanced landfill is the Air Hitam Sanitary landfill in Selangor which charges RM25.00 per tonne.</li> </ul>
<b>Issues</b>	<ol style="list-style-type: none"> <li>1. Lack of solid waste data</li> <li>2. Increasing waste generation</li> <li>3. Waste composition consist of higher portion of organic components</li> <li>4. No source separation of waste except in MPPJ</li> <li>5. Need to increase efficiency and effectiveness in solid waste collection</li> <li>6. Need to establish increased enforcement</li> <li>7. Need for Integration in choosing waste management options</li> <li>8. Need for priority in selecting waste management options</li> <li>9. Need to develop Market for resource recovered material</li> <li>10. Lack of land for disposal of solid waste</li> <li>11. Contaminated land due to open dumping of solid waste</li> <li>12. Household hazardous waste poses potential for contamination</li> </ol>
<b>Key Issues derived from above Issues</b>	<ol style="list-style-type: none"> <li>1. Need for Legislative Reforms in Solid Waste Management</li> <li>2. Need to Incorporate Economics in Solid Waste Management</li> <li>3. Need for Integration in Solid Waste Management Process</li> <li>4. Need for Communication of Solid Waste Information to Stakeholders</li> <li>5. Need for Research and Development</li> </ol>

**Policy Recommendation for Integrated Solid Waste Management in Malaysia****Policy Recommendation 1**

*A National Integrated Solid Waste Management Strategy for Malaysia shall be formulated which will contain the mechanisms, goals and priority areas for action.*

**Policy Recommendation 2**

*Legislation shall be developed to address Key Issues in Solid Waste Management*

**Policy Recommendation 3**

*Incorporation of Integration shall be done in the Solid Waste Management Process*

**Policy Recommendation 4**

*Utilization of Economic Instruments shall be emphasized to Reduce Solid Waste Generation and Increase Solid Waste Resource Recovery*

**Policy Recommendation 5**

*Development and Support of Market for Solid Waste Recovered Materials shall be intensified*

**Policy Recommendation 6**

*Communication of Information on Solid Waste Management shall be emphasized to all relevant stakeholders*

**Policy Recommendation 7**

*Promotion and Funding for Research and Development in Solid Waste Data and Solid Waste Management shall be emphasized*

**6.2 Implications of Findings & Policy Recommendations**

The implications of this study is that it provides a foundational work on policy for the subsequent development of a comprehensive National Policy or Strategy for Integrated Solid Waste Management in Malaysia. The core of this document can be used to derive the comprehensive National Policy or Strategy.

### **6.3 Limitations of this Study**

This study is limited by the lack of comprehensive and accurate data on solid waste in Malaysia especially in areas other than the Klang Valley and also due to the limited scope of this study. This study also has been conducted in a transitional period for solid waste management in Malaysia due to the national privatization initiative and the proposed Solid Waste Act. The subsequent development in these two areas may change the original context from which this study was conducted. Furthermore this study is not exhaustive although significant effort has been made to address the main issues in solid waste management. Consequently, this study has only postulated certain key issues and possible policy recommendations based on the available information and derived analysis. This needs to be further deliberated with the availability of additional information in the future. Finally as Matier (1995) puts it, "Policy planning must necessarily be trial and error with most policy learning emanating from experience". Therefore the effectiveness of the policy recommendations in this study will only be fully realized when implemented on the ground.

### **6.4 Recommendations for Further Research**

This study has provided a framework for future policy formulation in solid waste management in Malaysia. The core of this study comprises of an existing condition and strategic section. The strategic section containing policy instruments can be used in future research to derive a more comprehensive National Policy or Strategy for Integrated Solid Waste Management. Future studies in this line will then only have to update the existing frameworks in Malaysia while the strategic framework may need to be modified depending on the solid waste situational development.