

# APPENDIX 1A

**TERMS OF REFERENCE  
FOR  
CONSULTING SERVICES  
ON  
THE NATIONAL STRATEGIC MASTER PLAN  
FOR  
SOLID WASTE MANAGEMENT  
IN  
MALAYSIA**

**MINISTRY OF HOUSING AND LOCAL GOVERNMENT  
GOVERNMENT OF MALAYSIA**

**Appendix 1A****Terms of Reference for Consulting Services on  
National Strategic Master Plan for Solid Waste Management in Malaysia  
(prepared by the Ministry of Housing and Local Government)****1. Introduction**

- 1.1 Municipal Solid Waste Management is a basic sanitary service that is crucial for maintaining the health of urban communities and to protect the environment. An Action Plan for a Beautiful and Clean Malaysia, the ABC Plan, was prepared in 1987, and since then, no national plan on municipal solid waste management has been prepared.
- 1.2 The time has come for many crucial decisions to be made on Municipal Solid Waste Management, in light of the impending Solid Waste Management Bill, finalization of the National Privatisation of Solid Waste Management Concession Agreement and the Government's plan to promote reduction, reuse and recycling of solid waste and to invest in infrastructure facilities such as sanitary landfills, transfer stations and treatment and process facilities.
- 1.3 There is an urgent need for a National Municipal Solid Waste Management Strategic Plan, which will serve as a guide in planning and allocating resources with consideration of its priorities in the sector concerned.
- 1.4 Realizing the urgent need for such plan, the Honourable Minister of Housing and Local Government has instructed, in October 2000, that a study for the formulation of the plan be carried out. A Task Force was formed and given the mandate to formulate the plan.

**2. Background**

- 2.1 It is estimated that in Peninsular Malaysia alone, 4.6 million metric tonnes or approximately 17 million cubic meters of municipal solid waste is generated each year. With increased rate of urbanization and industrialization, the generation rate is expected to increase at 2% per annum. The annual per capita expenditure on municipal solid waste management in Malaysia is estimated to be RM57.95 (US\$15.25). World Bank report 1999, that is to say, more than RM500 million is spent annually to provide municipal solid waste management services in Malaysia. Out of this, about 80 to 90% is spent on waste collection and street sweeping with very little on processing, treating and land filling. Only about 76% of the generated waste is collected, with the remaining left in illegal dumps or finding its way to drains, streams and rivers.
- 2.2 In 1999, there were 177 waste disposal sites in Peninsular Malaysia and 94% of these were open dumps or uncontrolled tipping sites and not sanitary landfill, with poor operation and management practices. Most of these sites have only about 2 years of remaining operating lifetime, therefore requiring the urgent need to identify and construct new sanitary landfills. In Klang Valley and other major cities are facing with the difficulty of acquiring suitable land to be used as landfills.
- 2.3 There is only one non-compaction type transfer station in Johor, and one compaction type transfer station is under construction in the Federal Territory. There are no large-scale incineration or composting plant in the country. The EIA for a thermal treatment plant in the Federal Territory is under review. 4 mini

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incinerators of Multizon Pyrolytic Controlled Combustion system has been constructed in 4 tourist based islands in the country. 2 Thermal Oxidation Plants (TOP) are being considered for construction, each having a capacity of 40 – 50 metric tones per day.

- 2.4 The recycling program is not developed to an advanced stage and it is estimated that only a meagre 2% of the waste generated is recycled although formal recycling programs have been launched in several municipalities. Most of the recycling activities are carried out by the informal sector through scavengers or separation at source.
- 2.5 It can be said that solid waste management in the country is at a crossroad. Integrated solid waste management, using appropriate technologies and practices is required to be instituted in various localities throughout the country.
- 2.6 Municipal solid waste management is a major responsibility of local authorities under the Local Government Act 1976. Having realized that Local Authorities, with its limited resources, were unable to manage this important service to the standards required, the Federal Government has decided to take over these services with authority provided under the proposed Solid Waste Management Act. In 1996, four concession companies were issued letters of intent to provide municipal solid waste management services in four zones. Pending the finalization of the Concession Agreement, the four concession companies have been asked to go ahead with interim take over of services, which have been done in the Central and Southern zones. Presently only 26 local authorities in the Central and Southern zones has been taken over by the consortiums under the interim arrangement.

### 3. Objective

The objective of the consulting service is to study the present status of solid waste management in the country and to prepare a National Strategic Master Plan for Study for Solid Waste Management in Malaysia.

### 4. Scope of Work

The scope of work for the consulting services shall include, but not limited to, the following :

#### 4.1 Analysis of current status

The consultant shall determine the current status of solid waste management, focusing on six major aspects, ie. generation, storage, collection, transportation, process/treatment and disposal. A thorough analysis of the current status shall be carried out as basis in the formulation of the National Strategic Master Plan. Analysis of current status shall include, but not limited to :

- i. Government policies, programs and projects that has bearing on solid waste management as a whole.
- ii. General urban development policies with focus on specially planned cities and township.

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- iii. Resources that are currently incurred by the government and the local authorities and the level/grade of infrastructure and facilities developed for the provision of solid waste services.
- iv. Cost and efficiency of the present services provided by the local authorities.
- v. Allocation and financing of solid waste management as a whole.
- vi. Various waste management technologies implemented and its impact to the surrounding environment.
- vii. Legal, administrative and organizational system of solid waste management.
- viii. Research and development programs carried out by the local and international institutions relevant to solid waste management activities and program in Malaysia.

### 4.2 Scope of Recommendations :

- i. To review existing Government policies at the Federal, state and local authority affecting solid waste management and recommend an effective management policy and implementation strategies.
- ii. To evaluate existing facilities, infrastructure and technology in relation to current and projected needs by the respective concession areas and recommend the level of technology appropriate, taking into account its impacts or effect on the environment. The study will also examine the most appropriate technology mix in view of resources constraints faced. A special focus will be given to the requirements of Cyberjaya, which will serve as a model of a 'high tech' city.
- iii. To suggest the most appropriate mode of financing for facilities identified in view of resource constraints faced.
- iv. To explain the criteria for selection of technology mix proposed to serve as a guide in future selection of waste management system or technology.
- v. To explain the criteria for selection of site for facilities proposed to serve as a guide in future planning.
- vi. To evaluate existing waste data bases at the respective levels in order to identify weaknesses or gaps in data for purposes of monitoring waste management.
- vii. To prepare an action plan for the implementation of the strategic master plan.
- viii. To organize all necessary meetings, workshops, and seminars for the realization of this term of reference.

### 4.3 Expected Output

- i. A policy framework related to the overall management of solid waste in Malaysia including the scope of privatisation and implementation

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strategies taking into account current obstacles or shortfall faced in implementing the privatisation policy.

- ii. A detailed planning of future requirement for facilities/infrastructure related to solid waste management i.e. landfill, incinerator, transfer station etc. taking into account the different waste characteristic/ composition, land use and population growth projection.
- iii. A recommendation on the application or combination of technologies in solid waste management best suited to the Malaysian environment and context. Weaknesses in the technologies need to be highlighted with special emphasis on handling environmental pollution.
- iv. A recommendation on the framework for the establishment of a national waste database and to recommend a system of electronic networking (including a web site) between the Federal, States and Local Authorities aimed at effective monitoring of waste management in the country.

### 5. Study Schedule

The following reports are to be prepared at the intervals specified from the award date :

a. Inception report	-	3 <sup>rd</sup> week
b. Interim report 1	-	3 <sup>rd</sup> month
c. Interim report 2	-	6 <sup>th</sup> month
c. Draft final report	-	11 <sup>th</sup> month
d. Final report	-	12 <sup>th</sup> month

### 6. Reports to be prepared

The following reports will be prepared in English and submitted to the Task Force in accordance with the progress of the study.

i. Inception Report	-	25 copies
ii. Interim Report 1	-	30 copies
iii. Interim Report 2	-	30 copies
iii. Draft Final Report	-	30 copies
iv. Final Report	-	60 copies

### 7. Staff Assignment Schedule and Man Month of Foreign and Local Consultants

- i. The Consulting Firm shall provide sufficient, relevant and appropriate number of personnel to undertake the consulting services.
- ii. The Consulting Firm shall provide and engage Local Consultants whose services rendered shall consist of more than 50% of professional man-months required for this study.

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- iii. The required experts for the consulting services shall include, but not limited to, the following personnel :

	<u>Foreign</u>	<u>Local</u>
a) Team Leader	1	1
b) Assistant Team Leader	-	1
c) Solid Waste Management Expert	1	2
d) Process/Treatment Engineer	1	1
e) Sanitary Engineer	1	2
f) Environmental Expert	1	2
g) Social-Economist	-	1
h) Planner	-	1
i) Lawyer	-	1
j) Financial Analyst	1	1
k) IT – GIS Expert	-	1

**8. Undertaking of MHLG**

- i. Task Force

MHLG will appoint a Task Force to manage the preparation of the strategic master plan. This Task Force will be chaired by the Director of Engineering Services Division, Ministry of Health (Leader of the Task Force).

The Technical Division of the Local Government Department will provide the secretarial support to the Task Force.

- ii. Assistance

The MHLG shall assist the consulting when necessary to ensure smooth implementation of their work in Malaysia.

**9. Remuneration Procedures**

- i. The fees for the consulting services shall be based on man-month and the amount will be in the approved Financial Schedule which will form a part of the Memorandum of Agreement between the Consulting Firm and the MHLG.
- ii. All reimbursable items especially out of pocket expenses shall be claimed on a monthly basis but the total accumulated claims shall not exceed the total amount of reimbursable stated in the Financial Proposal approved by the Ministry of Finance. All claims shall be submitted with relevant receipts.

**10. Agreement**

The Consulting Firm shall prepare ten (10) sets of agreement, in the format approved by the MHLG, for signing not later than one (1) month after the date of the Letter of Appointment.