

**MINISTRY OF HOUSING AND LOCAL GOVERNMENT  
MALAYSIA**

**THE STUDY ON  
NATIONAL WASTE MINIMISATION  
IN MALAYSIA**

**FINAL REPORT**

**Volume I  
Main Report**

**JULY 2006**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

**YACHIYO ENGINEERING CO., LTD.**

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**The Study on National Waste Minimisation in Malaysia**  
**Final Report**

**FINAL REPORT COMPOSITION**

The Final Report is composed of the following:

1. Summary
2. **Volume I – Main Report**
3. Volume II – Guidelines
4. Volume III – Pilot Projects
5. Supporting Report – 1 Additional Information
6. Supporting Report – 2 Local Action Plan

This Report is “Volume I- Main Report”.



## **PREFACE**

In response to a request from the Government of Malaysia, the Government of Japan decided to conduct a study on “The Study on National Waste Minimisation in Malaysia” and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Noboru Saeki of YACHIYO ENGINEERING Co., LTD. and consisted of experts from YACHIYO ENGINEERING Co., LTD. and EX CORPORATION between July 2004 and June 2006. In addition, JICA set up an advisory committee headed by Dr. Yasushi Matsufuji, Professor at Department of Civil Engineering, Faculty of Engineering, Fukuoka University, which examined the study from specialist and technical points of view.

The team held discussions with the officials concerned of the Government of Malaysia and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the study.

July 2006

Ariyuki Matsumoto  
Vice President  
Japan International Cooperation Agency



July 2006

Mr. Ariyuki MATSUMOTO  
Vice President  
Japan International Cooperation Agency

## **LETTER OF TRANSMITTAL**

We are pleased to submit to you the final report of the Study on National Waste Minimisation in Malaysia. The report includes the advice and suggestions of the authorities concerned of the Government of Japan and your Agency. Also included are comments made by the Ministry of Housing and Local Government and related authorities in Malaysia.

The report deals with the present conditions of solid waste minimisation and 3Rs in Malaysia and presents the Master Plan and Action Plan on Waste Minimisation, as well as a set of guidelines on waste minimisation for all the related players.

In accordance with the contract with your Agency, we Yachiyo Engineering Co., Ltd. and EX Corporation implemented this study during the period of July 2004 to July 2006. Based on a deep understanding of the existing conditions in Malaysia we have prepared a plan that is feasible and can be implemented.

Finally, we sincerely hope that this report will be effectively used for the realisation of the plan. We wish to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs and Ministry of the Environment. We also wish to express our deep gratitude to the Ministry of Housing and Local Government and the relating organizations in Malaysia for the close cooperation and assistance extended to us during the Study.

Very truly yours,

Noboru SAEKI  
Team Leader  
The Study on National Waste Minimisation in Malaysia





## **EXECUTIVE SUMMARY**

### **1 INTRODUCTION**

#### **1.1 Background of the Study**

Since the mid eighties solid waste generated in urban areas has been increasing year by year due to rapid urbanisation and diversity of lifestyles in Malaysia. As a result of rapid urbanisation, problems of increasing waste management cost and securing landfill sites have arisen in the country.

The Ministry of Housing and Local Government (MHLG) has taken the lead in promoting and establishing recycling systems, however the Malaysian data shows that the rate of recycling of solid waste remains at about 2 to 5%.

In response to an official request from the Government of Malaysia, the Japan International Cooperation Agency (hereinafter referred to as “JICA”), the official agency responsible for implementation of technical cooperation programmes of the Government of Japan, conducted this Study on National Waste Minimisation in Malaysia (hereinafter, “the Study”).

The Study was implemented in two phases. Phase 1 commenced in July 2004 and was completed by the end of March 2004 whilst Phase 2 started in May 2005 and ended in July 2006. The entire Study period was about 25 months.

#### **1.2 Objectives and Output of the Study**

Objectives of the Study are as follows:

- (1) To formulate the Master Plan, Action Plans and Guidelines necessary to promote Waste Minimisation (Reduce, Reuse, Recycle) in line with the National Strategic Plan for Solid Waste Management in Malaysia (NSP). Components of the Study include:
  - i) Solid Waste Minimisation Master Plan
  - ii) Solid Waste Minimisation Action Plans
    - a. Solid Waste Minimisation Action Plan for Federal Government
    - b. Solid Waste Minimisation Action Plan for LAs
  - iii) Solid Waste Minimisation Guidelines for use by implementing agencies such as LAs, private sector entities, schools, NGOs, CBOs and the general public
- (2) To strengthen the institutional capacity of the public sector on management of waste minimisation.
  - i) Federal Government: raising planning capability
  - ii) LAs: raising capability to manage/monitor waste management service

#### **1.3 Study Area and Target Waste**

The Study covers Peninsular Malaysia as well as East Malaysia.

The waste types targeted for minimisation include household, commercial and industrial waste types. Scheduled wastes were not included in the Study.

### **2 MASTER PLAN FOR WASTE MINIMISATION**

#### **2.1 Objectives**

The Objectives of the Master Plan on National Waste Minimisation (WM-M/P) is to provide Vision, Strategies and Roles of Stakeholders to minimise the amount of solid waste disposed in Malaysia. The WM-M/P embodies the principles of the National Strategic Plan for Solid Waste Management.

## **2.2 Visions**

The ultimate vision of the WM-M/P is:

*“To realise a **Material Cycle Society**, where waste minimisation activities are systemised and sufficiently enrooted in the behaviour of government, private sector, and the people in Malaysia”*

To realise such a *society*, it is of great necessity to reduce waste generation at source, to minimise the amount of waste disposed at landfills and to maximise the efficiency of resource utilisation.

## **2.3 Strategies**

Based on an appreciation of current issues and to realise the vision and achieve the set target, strategies should be established, considering the need for:

1. A deeply rooted *awareness* within the Malaysian society on the importance of waste minimisation;
2. A mechanism of waste minimisation based on the *partnership* of government, private sector, and general public and participation of stakeholders from all levels of the Malaysian community;
3. Proper recognition and practice of waste minimisation that can be sustained by market mechanism and with *government involvement* in the development of an environment that encourages all participants to implement the 3Rs (Reduce, Reuse, and Recycle); and
4. Practice of waste minimisation in accordance with the hierarchy of 3Rs.

To realise this vision of a *“Material Cycle Society”*, the following three comprehensive strategy areas form the basis of the WM-M/P. These strategies are targeted at the three key stakeholders: the government, private sector and the general public.

- *Enhancement of Awareness on Waste Minimisation (Awareness)*
- *Strengthening of Partnership for 3Rs Activities (Partnership)*
- *Enhancement of Institution to Strengthen Government Policies on Waste Minimisation*

## **2.4 Framework**

The framework of the WM-M/P is as follows:

- Target Wastes are household, commercial, institutional, industrial and construction wastes
- Target Area covers all of Malaysia
- Target Year is 2020, which coincides with the target year for the National Strategic Plan (NSP) and Vision 2020

# **3 ACTION PLAN FOR WASTE MINIMISATION**

## **3.1 Action Plan for the Federal Government**

In line with the WM-M/P vision of realising a “Material Cycle Society” by 2020 and the WM-M/P strategies, the Action Plan for the Federal Government with a target year of 2010 was prepared.

The relationship between the WM-M/P strategies and the Federal Action Plan is shown in Table 1 and outline of the Action Plan is shown in Table 2.

**Table 1 Master Plan Strategies and Federal Action Plan**

M/P Strategies	Federal Action Plan
Strategy-1: Enhancement of Awareness on Waste Minimisation	Action-1: Enhancement of Awareness Raising Activities under the National Recycling Programme (NRP) Action-2: 3R Activities in Schools
Strategy-2: Strengthening of Partnership for 3Rs Activities	Action-3: Formulation of Stakeholders' Networking and Development of Partnership Activities on 3Rs
Strategy-3: Enhancement of Institution to Strengthen Government Policies on Waste Minimisation	Action-4: Strengthening of Legal, Regulatory and Financial Mechanism
	Action-5: Improvement of Information Management
	Action-6: Provision of Guidance to LAs on LAP-WM

### **3.2 Action Plan for Local Authorities**

As highlighted in the WM-M/P, LAs have to play a key role in waste minimisation and to initiate the programme even though the local community and private entities may do the actual activities. Prior to initiating waste minimisation, the respective LA needs to formulate its own Local Action Plan that serves as a road map for that LA to achieve waste minimisation and its recycling targets – targets that need to take into account the LA's conditions, capability and limitations. The aim of the Action Plan is to get the LAs to participate and contribute towards the achievement of the national recycling target of 22% by the year 2020 set by the NSP.

The LAPs-WM at four (4) model LAs were prepared based on the following outline:

- (1) Necessity of Waste Minimisation in the LA
- (2) State of Waste Management and Recycling in the LA
- (3) Targets of Waste Minimisation and Recycling
- (4) Actions to Achieve the Targets
- (5) Monitoring and Implementation Schedule for the Action Plans

**Table 2 Outline of the Federal Action Plan for Waste Minimisation**

Action Plan		Target/ Performance Indicators	Responsible Agencies	Cost (RM)
Actions	Detailed Activities			
Action-1: Enhancement of Awareness Raising Activities under the National Recycling Programme (NRP)	A1-1: Improvement of the National Recycling Programme	Households interview survey nation-wide to determine extent of strengthened public awareness on Authorisation	MHLG	15,625,000
	A1-2: Implementation of Nation-wide Awareness Campaign on Source Separation		MHLG, LAs	
	A1-3: Development and Training of Leaders for Promotion of 3Rs		MHLG, LAs	
	A1-4: Promotion of Green Purchasing and Waste Reduction at Source		MHLG, MITI	
Action-2: 3Rs Activities in Schools	A2-1: Dissemination of the “Guidelines for the Enhancement of 3Rs Activities in Schools”	10 LAs & 4 States implement School 3Rs programme	MHLG, MOE	6,640,000
	A2-2: Formulation of Award Programme for 3Rs Activities in Schools		LAs, States	
	A2-3: Implementation and Monitoring of 3Rs Activities in Schools		Pupils, Teachers, LAs, States	
Action-3: Formulation of Stakeholders’ Networking and Development of Partnership Activities of NGOs/CBOs	A3-1: Formulation of National Annual Plan for Organising Stakeholders’ Networking and Implementation of Source Separation	Recycling rate reaches 11% in 2010	MHLG	123,075,000
	A3-2: Formulation of Stakeholders’ Networking		LAs, Private sectors	
	A3-3: Implementation of Pilot 3Rs Activities		LAs, States	
	A3-4: Development of Partnership Activities on 3Rs by NGOs/ CBOs		MHLG, LAs, NGOs/CBOs	
Action-4: Strengthening Legal, Regulatory and Financial Mechanism	A4-1: Preparation of Rules and Regulations under SWM Act	SWM Act, WM M/P & A/P and By-Law on SWM are authorised and enacted	MHLG, EPU	580,000
	A4-2: Authorisation and Implementation of WM-M/P		MHLG, EPU	
	A4-3: Amendment of By-Law on SWM		MHLG, LAs	
	A4-4: Financial Support to LAs for Formulation and Implementation of LAP-WM		MHLG, EPU	
Action-5: Improvement of Information Management	A5-1: Establishment of Information Management System	All LAs participate in IMS WMU is established in all LAs	MHLG, LAs, Concessionaires	2,495,000
	A5-2: Implementation and Monitoring of IMS		MHLG, LAs, Concessionaires	
Action-6: Provision of Guidance to LAs on LAP-WM	A6-1: Formulation of National Annual Plan for LAPs-WM	All LAs formulate and implement LAPs on waste minimisation	MHLG	22,955,000
	A6-2: Dissemination of the Guidelines for LAP-WM		MHLG	
	A6-3: Establishment of Waste Minimisation Unit in LAs		MHLG, LAs	
	A6-4: Formulation, Implementation and Monitoring of LAP-WM		MHLG	

Total: RM 171,370,000

## 4 GUIDELINES

Based on the experiences gained during the Study and the drafting of the WM-M/P and A/P, waste minimisation guidelines were prepared as shown in Table 3.

**Table 3 Waste Minimisation Guidelines**

No	Title of Guidelines	Target Group
1	Guidelines for Enhancement of 3Rs Activities in Schools	School teachers
2	Guidelines for Formulation of LAP-WM	LAs
3	Guidelines for Source Separation of MSW	LAs
4	3Rs Action Guide (3RAG)	Various stakeholders

## 5 PILOT PROJECTS

In line with the JICA Study on the formulation of the WM-M/P and A/P for the Federal Government, a number of Pilot Projects (PPs), as shown in Table 4, were implemented to examine and demonstrate the effects and practicability of the recommended components of the WM-M/P and A/P.

**Table 4 Pilot Projects of the Study**

Pilot Projects	Project Purpose	Project Components
PP-I: Establishment of National Recycling Information System	<ol style="list-style-type: none"> <li>1. Establishing the Recycling Networking Unit (RNU) in MHLG to function as a base of 3Rs data accumulation and disbursement in Malaysia.</li> <li>2. Enhancement of capacity of MHLG to monitor SWM &amp; 3Rs activities at the Federal level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establishment of Recycling Networking Unit (RNU)</li> <li>2. Establishment of data management system on Solid Waste Management (SWM) and 3Rs at the national level</li> <li>3. Establishment of Information Management System (IMS)</li> <li>4. Capacity Development of MHLG</li> </ol>
PP-II: Local Recycling Network and Source Separation of MSW	<ol style="list-style-type: none"> <li>1. Realising sustainable recycling through the partnership of stakeholders.</li> <li>2. Establishing Waste Minimisation Unit (WMU) in LAs to function as a focal point on 3Rs.</li> <li>3. Improvement of capacity of LAs to monitor recycling activity.</li> <li>4. Increase of collection amount of recyclable materials separated at source.</li> </ol>	<p>&lt;PP-II-1: Establishment of Local Recycling Network in Model LAs&gt;</p> <ol style="list-style-type: none"> <li>1. Establishment of Waste Minimisation Unit (WMU)</li> <li>2. Establishment of recycling network in LAs</li> <li>3. Establishment of data management system on SWM and 3Rs Activities</li> <li>4. Development of 3Rs awareness promotion</li> </ol> <p>&lt;PP-II-2: Source Separation of MSW&gt;</p> <ol style="list-style-type: none"> <li>1. Establishment of source separation system</li> <li>2. Implementation of campaign for 3Rs</li> <li>3. Implementation of questionnaire survey</li> <li>4. On-the-Job Training</li> </ol>
PP-III: Authorisation Activities in Primary & Secondary Schools	<ol style="list-style-type: none"> <li>1. Preparation and verification of Guidelines</li> <li>2. Enhancement of awareness on 3Rs for students and teachers.</li> </ol>	<ol style="list-style-type: none"> <li>1. Preparation of the “Guidelines on Enhancement of 3Rs Activities in Schools”</li> <li>2. Implementation of 3Rs Activities programmes in schools in Johor (Trial of the Guidelines)</li> <li>3. Implementation of 3Rs Award Programme for schools in Miri</li> </ol>

## **6 RECOMENDATIONS**

### **6.1 Authorisation of Waste Minimisation Master Plan and Federal Action Plan**

The WM-M/P and Federal Action Plan should be authorised without delay and implementation should start immediately thereafter. Furthermore, the “Solid Waste Management Act”, which will form the basic law on SWM in Malaysia, should also be authorised and enacted in due time.

### **6.2 Improvement of the National Recycling Programme**

Improvement and continuous implementation of the National Recycling Programme (NRP) is required. The recommended main programmes for the improvement of NRP include:

- Nation-wide campaign on source separation
- Nation-wide promotion of eco-products and green purchasing

### **6.3 Nation-wide Practice of Source Separation**

“Source separation” is a key measure for waste minimisation in Malaysia. MHLG needs to expand source separation activities nation-wide: firstly, by preparing national annual plan for source separation; secondly, by conducting nation-wide campaigns on source separation; and thirdly, by setting up networking amongst stakeholders at both the federal and local levels.

### **6.4 Strategic Education and Awareness Programme**

Under the joint collaboration of the Ministry of Housing and Local Government (MHLG) and the Ministry of Education (MOE), the following strategic education and awareness programme should be introduced.

- Nation-wide dissemination of the “Guidelines for the Enhancement of 3Rs Activities in Schools.”
- Formulation and implementation of 3Rs award programme for schools at LA, State and National levels.

### **6.5 Continuation and Expansion of the Information Management System**

MHLG should be the focal point of all information and data on 3Rs. MHLG has established the “Recycling Information Centre” within the Ministry and a pilot project involving ten LAs was carried out by the JICA study to establish a data management system on solid waste management and 3Rs on the national level. This information management system should be continued and expanded to all LAs in Malaysia.

### **6.6 Strengthening of Institutional System**

On the Federal level, the Recycling Networking Unit (RNU) within MHLG should have sufficient staff and budget to sustain its activities. A Waste Minimisation Promotion Committee should be established comprising relevant federal and local government agencies and related stakeholders with MHLG as the coordinating body.

On the LA level, there is a need to establish a Waste Minimisation Unit (WMU) in each LA to function as a communication platform amongst all the related stakeholders and focal points on 3Rs. MHLG should formulate the regulative mechanism to establish the WMU in the LAs.

### **6.7 Waste Minimisation and Privatisation**

It is generally accepted that the promotion of waste minimisation and/or recycling would lead to a reduction of the amount of waste collected and disposed, and in consequence significantly affect current payment mechanisms to SWM companies and/or concessionaires in the country. The following measures need to be considered for more effective promotion of waste minimisation in Malaysia.

- Recycling activities such as collection and treatment of recyclables and awareness activities may be partially provided by SWM companies and/or concessionaires.
- Means of payment to the SWM companies and/or concessionaires for their services need to be re-considered. For example, in addition to the present amount base payment, service-quality base payment also needs to be considered.





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## **Abbreviations**

AFSB	Alam Flora Sdn Bhd
A/P	Action Plan
CBO	Community Based Organisation
C/P	Counterpart
DB	Dewan Bandaraya (City Hall)
DBKL	Dewan Bandaraya Kuala Lumpur (Kuala Lumpur City Hall)
DBKU	Dewan Bandaraya Kuching Utara (Kuching North City Hall)
DSWM	Division of Solid Waste Management
EPU	Economic Planning Unit
GOM	Government of Malaysia
G3RS	Guidelines for Enhancement of 3Rs Activities in School
IEC	Information, Education and Communication
IMS	Information Management System
JICA	Japan International Cooperation Agency
LA	Local Authority
LAP-WM	Local Action Plan on Waste Minimisation
LGD	Local Government Department
MB	Majlis Bandaraya (City Council)
MBJB	Majlis Bandaraya Johor Bahru (Johor Bahru City Council)
MBKS	Majlis Bandaraya Kuching Selatan (Kuching South City Council)
MBM	Majlis Bandaraya Miri (Miri City Council)
MBMB	Majlis Bandaraya Melaka Bersejarah (Melaka City Council)
MD	Majlis Daerah (District Council)
MDK	Majlis Daerah Kerian
MDKS	Majlis Daerah Kinta Selatan (South Kinta District Council)
MHLG	Ministry of Housing and Local Government
MIDA	Malaysian Industrial Development Authority
MITI	Ministry of International Trade and Industry
MOE	Ministry of Education
MONRE	Ministry of Natural Resources and Environment
MP	Majlis Pernadaran (Municipal Council)
M/P	Master Plan
MPK	Majlis Perbandaran Kuantan (Kuantan Municipal Council)
MPPP	Majlis Perbandaran Pulau Pinang (Penang Island Municipal Council)
MPPJ	Majlis Perbandaran Petaling Jaya (Petaling Jaya Municipal Council)
MPSJ	Majlis Perbandaran Subang Jaya (Subang Jaya Municipal Council)
MRF	Material Recovery Facility
MSW	Municipal Solid Waste
NCP3R	National Children's Programme on 3Rs
NGO	Non Governmental Organisation
NRD	National Recycling Day
NREB	National Resources and Environment Board
NRP	National Recycling Programme
NSP	National Strategic Plan on Solid Waste Management
OECD	Organisation for Economic Co-operation and Development
OPP3	Third Outline Perspective Plan
PDM	Project Design Matrix
PP	Pilot Project
PR	Public Relations
PWD	Public Works Department
RA	Residents Association

R&D	Research and Development
RIC	Recycling Information Centre
RM-8	Eighth Malaysian Plan
RM-9	Ninth Malaysian Plan
RNU	Recycling Networking Unit
SND	Stakeholders' Networking Database
SS	Source Separation
SW	Solid Waste
SWM	Solid Waste Management
SWM Act	Solid Waste Management Act
SWMD	Solid Waste Management Department
SWMSB	Southern Waste Management Sdn Bhd
TWG	Technical Working Group
WM	Waste Minimisation
WMU	Waste Minimisation Unit
WM-M/P	Waste Minimisation Master Plan
3RAG	3Rs Action Guide

# **CHAPTER 1**

## **INTRODUCTION**





## **CHAPTER 1 INTRODUCTION**

### **1.1 Background**

Solid waste generated in urban areas has been increasing year by year due to the rapid urbanisation and diversity of lifestyles in Malaysia since the mid 1980s. Increasing waste management cost and securing final disposal landfills has become one of the most serious social issues in Malaysia.

Responding to this emerging issue, the Government of Malaysia, in the 8<sup>th</sup> Malaysia Plan (2001-2005), has included “waste minimisation,” “promotion of reuse,” “developing a recycling-oriented society,” and “implementation of pilot projects for recycling” as some of its main policy goals. The 9<sup>th</sup> Malaysia Plan (2006 – 2010) further emphasised the continuation of reduce, reuse, recovery and recycling of waste as well as greater use of environmentally friendly products.

In line with the basic policy framework articulated in the above plans, the Ministry of Housing and Local Government (MHLG) has been conducting national programmes for the promotion of recycling and public awareness on 3Rs activities. Pilot projects under Local Agenda 21 were also carried out to promote recycling activities through public participation. However, the efforts of waste minimisation are still limited to some environmentally aware stakeholders and the recycling rate of solid waste still remains at a low level of 2 to 5%.

In response to the official request from the Government of Malaysia, the Study on National Waste Minimisation in Malaysia was carried out for the purpose of presenting the vision, strategies and plans for realising an environmentally sustainable society in Malaysia.

### **1.2 Objective of the Study**

The objectives of the Study are as follows:

- (1) To formulate the Master Plan, Action Plans and Guidelines noted below to promote Waste Minimisation (Reduce, Reuse, Recycle) in line with the National Strategic Plan for Solid Waste Management in Malaysia
  - i) Solid Waste Minimisation Master Plan
  - ii) Solid Waste Minimisation Action Plans
    - a. Solid Waste Minimisation Action Plan for Federal Government
    - b. Solid Waste Minimisation Action Plan for Local Authorities
  - iii) Solid Waste Minimisation Guidelines for the use by the potential implementing organisations of waste minimisation activities such as Local Authorities, private sectors, NGOs, CBOs, and general public.
- (2) To strengthen the institutional capacity of the public sector in promoting waste minimisation through:
  - i) Capacity development of the Federal Government in formulating and implementing national policies, plans and programmes on waste minimisation; and
  - ii) Capacity development of Local Authorities in formulating and implementing

local plans and programmes on waste minimisation based on close partnership with relevant stakeholders.

### 1.3 Study Area

The Study covers Peninsular Malaysia and East Malaysia.

### 1.4 Target Waste of Minimisation

In the Study, household, commercial and industrial solid wastes, other than scheduled waste, are targeted for minimisation.

### 1.5 Outline and Schedule of the Study

The Outline and Schedule of the Study are shown in Figure 1.5.1 and Figure 1.5.2, respectively.

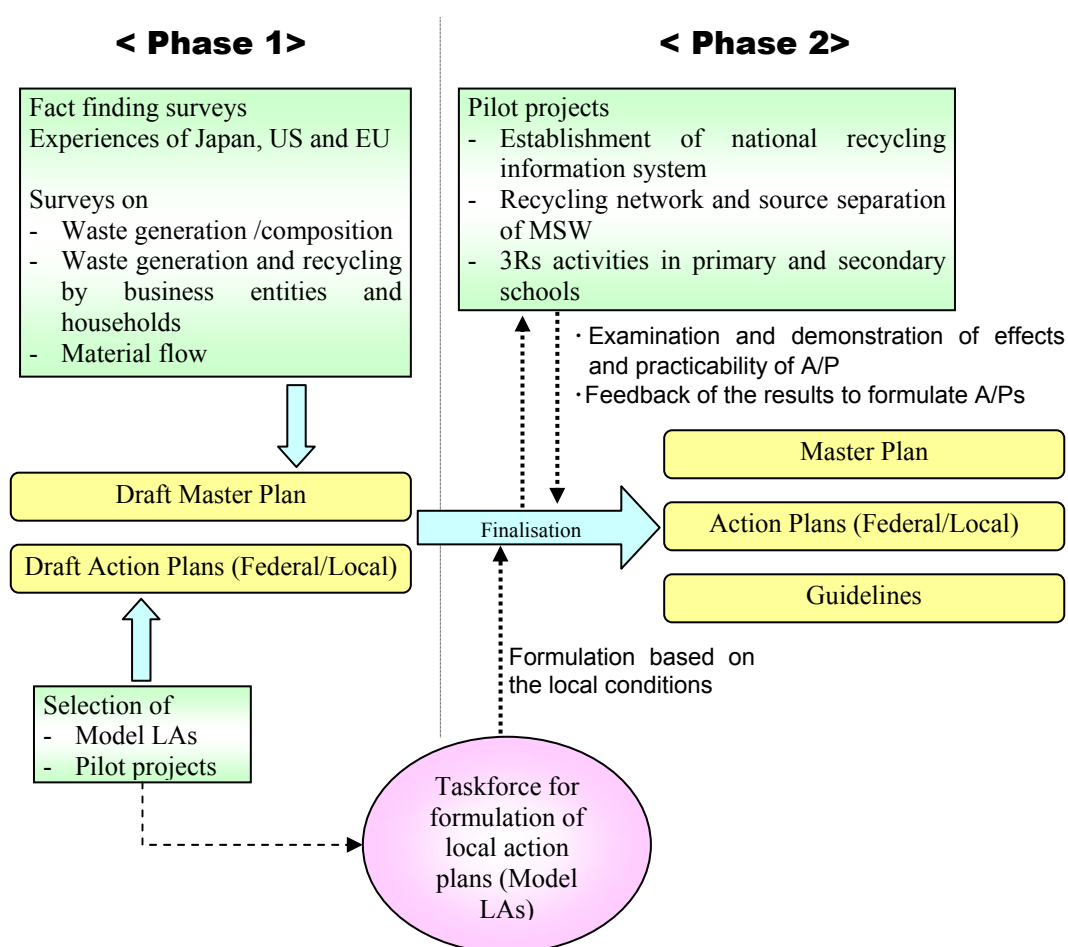


Figure 1.5.1 Outline of the Study

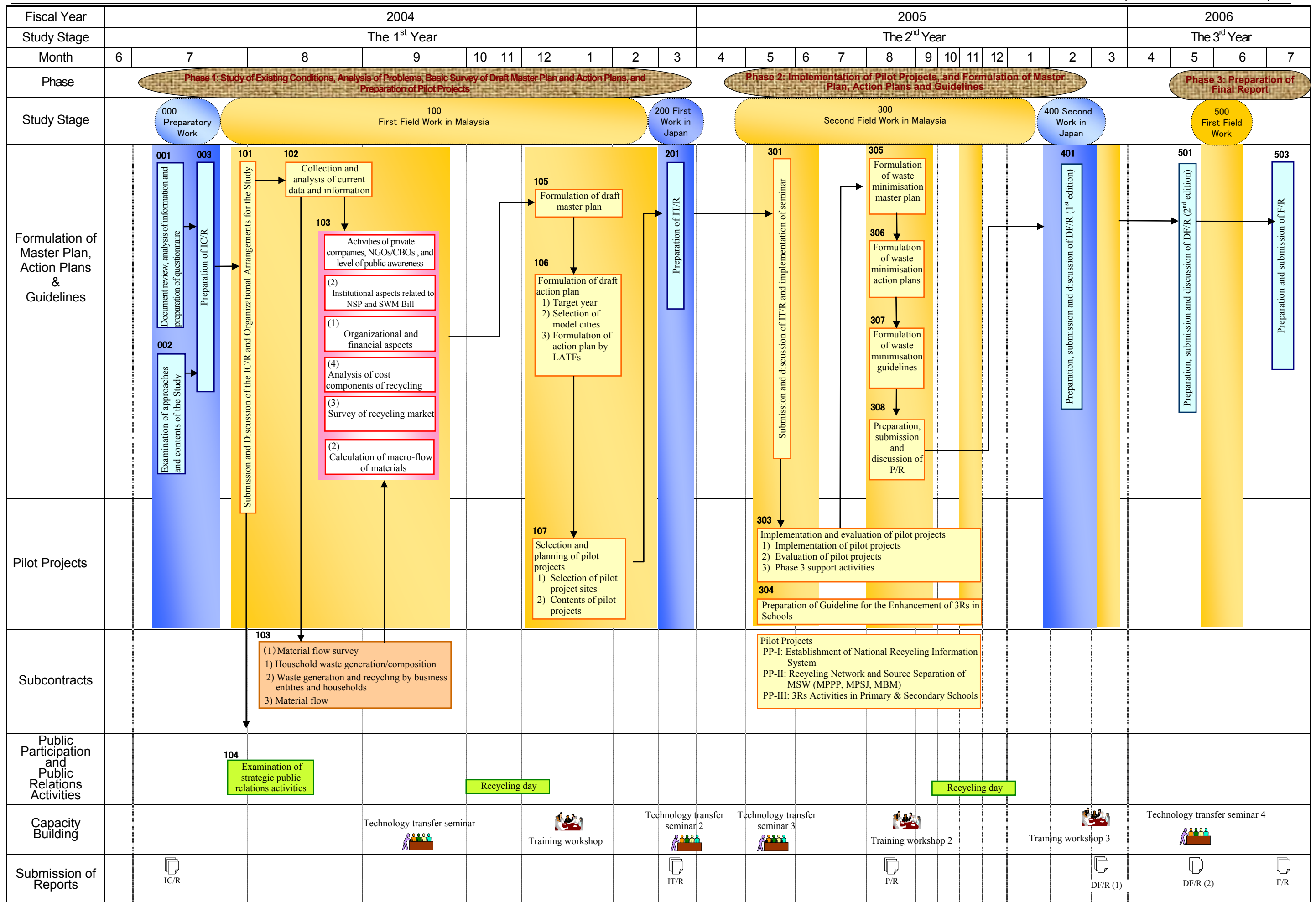


Figure 1.5.2 Flow Chart of the Study



## 1.6 Study Organisation

The Study organisation was as shown in Figure 1.6.1.

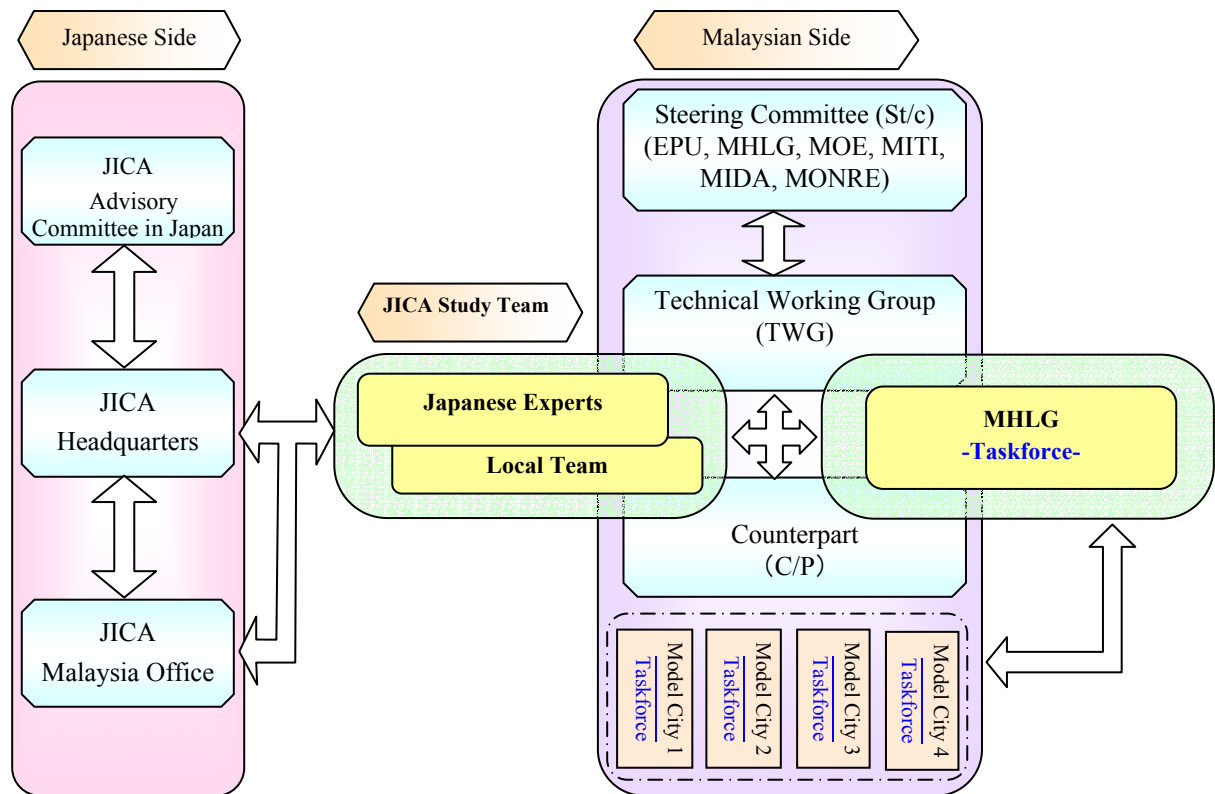


Figure 1.6.1 Study Organisation

## 1.7 Study Outputs

The outputs of the Study is summarised as follows:

- i. Waste Minimisation Master Plan for the whole of Malaysia, focusing on municipal solid wastes and with the target year of 2020.
- ii. Waste Minimisation Action Plan at the Federal Level with the target year of 2010.
- iii. Guidelines
  - Guidelines for Enhancement of 3Rs Activities in Schools
  - Guidelines for Formulation of Local Action Plan on Waste Minimisation
  - Guidelines for Source Separation of Municipal Solid Waste
  - 3Rs Action Guide (3RAG)
- iv. Pilot Projects (PP-I, II and III) Implementation and Reports
  - PP-I: Establishment of National Recycling Information System
  - PP-II: Local Recycling Network and Source Separation of MSW
  - PP-III: 3Rs Activities in Primary & Secondary Schools
- v. Local Action Plans on Waste Minimisation in MPSJ, MDKS, MBM and MPPP



## **CHAPTER 2**

# **WASTE MINIMISATION MASTER PLAN WITHIN THE FRAMEWORK OF NATIONAL SOLID WASTE MANAGEMENT**





## CHAPTER 2 WASTE MINIMISATION MASTER PLAN WITHIN THE FRAMEWORK OF NATIONAL SOLID WASTE MANAGEMENT

This Chapter outlines the SWM plans prepared in Malaysia, and highlights the strategy relevant to the 3Rs that was incorporated in the National Strategic Plan for Solid Waste Management. The national development plans adopted by the Government of Malaysia that have a bearing on the environmental issues and SWM are also described.

As consumption habits change and solid waste management problems show a drastic increase in Malaysia, the past decade has also witnessed the development of a number of SWM plans to deal with these problems. The Waste Minimisation Master Plan is a logical continuation of these SWM plans, especially for the National Strategic Plan on Solid Waste Management (NSP), and comes at a good time to positively impact the course of development. These national development plans and SWM plans are chronologically depicted in the following Figure 2.1.1.

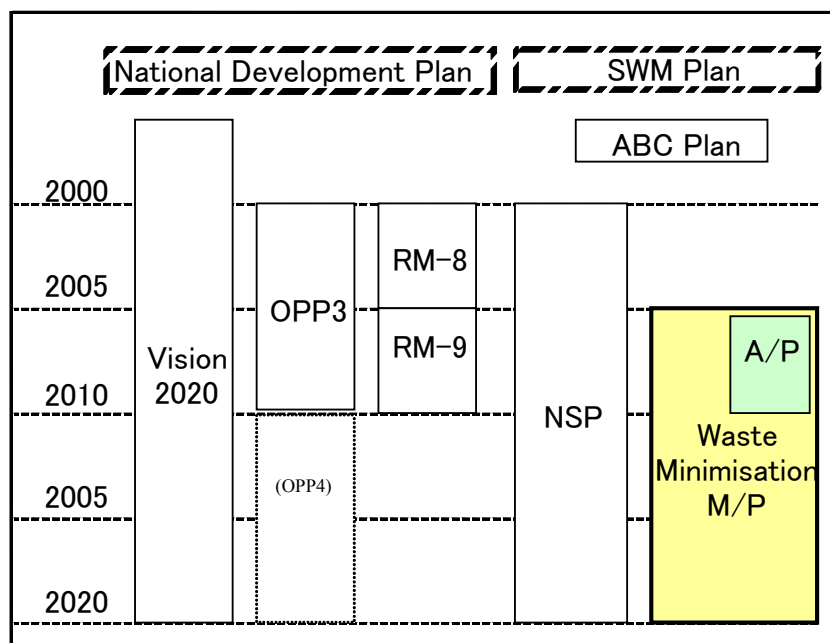


Figure 2.1.1 National Development Plans and SWM Plans in Malaysia

### 2.1 Related National Development Plans

#### 2.1.1 Vision 2020

“VISION 2020”, declared in 1990, sets a challenge for Malaysia to become a fully developed nation by the year 2020. The nation would pursue environmentally sustainable development as the basis for development along all the dimensions: in national unity and social cohesion, economy, social justice, political stability, system of government, quality of life, social and spiritual values, national pride and confidence.

#### 2.1.2 Third Outline Perspective Plan (2001-2010)

The Third Outline Perspective Plan (OPP3), which constitutes the second decade of development under Vision 2020, embodies the National Vision Policy (NVP). The Plan stresses the importance of reducing energy, materials, pollution, and waste intensity of urban

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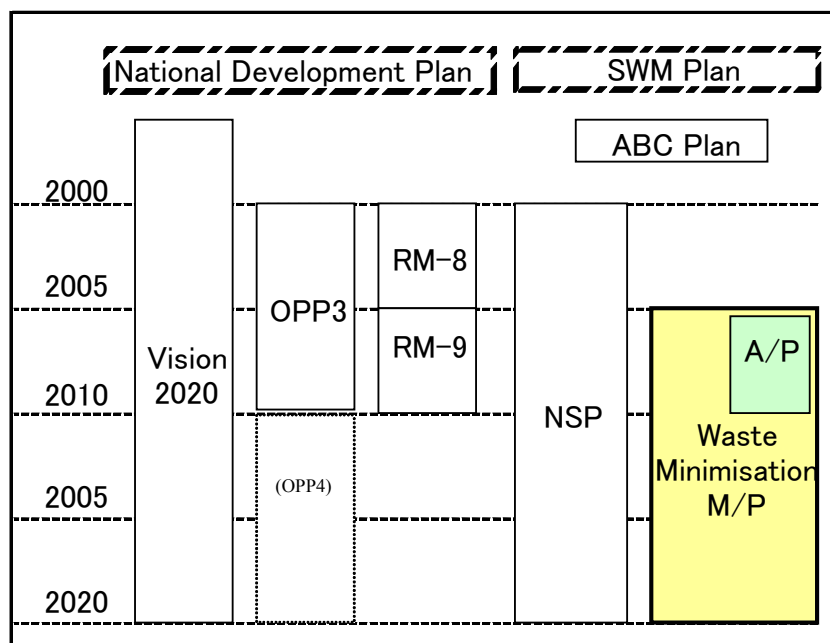


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and industrial activities. Promotion of the reduction, reuse and recycling of materials is identified as a key measure to influence the choice in technology and management of new urban and industrial investments. It also encourages the use of economic instruments and the implementation of “Polluters Pay Principle” in addressing the environment issues.

### **2.1.3 Eighth Malaysian Plan (2001-2005)**

The Eighth Malaysian Plan (RM-8) covers the first phase of the OPP3 from the year 2001 to 2005. The Plan envisions that a comprehensive waste management policy to address the issues of waste reduction, reuse, and recycling will be introduced. It also states that relevant studies and demonstration projects will be carried out to ascertain the viability and the acceptability of a waste recycling industry. The roles of LAs are also addressed in introducing various initiatives and appropriate approaches such as incentives and collection charges to reduce the amount of household waste. Thus, the concept of 3Rs (Reduce, Reuse and Recycle) is clearly articulated in this Eighth Malaysian Plan.

### **2.1.4 Ninth Malaysian Plan (2006-2010)**

The Ninth Malaysian Plan (RM-9) covers the second half of the OPP3 period. In its analysis of the achievements over the past 5 years, such as opening of two sanitary landfill sites and a transfer station, RM-9 states that despite the efforts to promote the 3Rs, the recycling rate remained at less than 5 % of total waste disposed. The SWM facilities proposed in the NSP include the upgrading of unsanitary landfills, and the construction of new sanitary landfills and transfer stations with integrated material recovery facilities. The NSP proposed that these facilities be implemented under RM-9. RM-9 states that priority for 3Rs will continue and awareness raising activities will be increased. Of special importance, RM-9 states that a solid waste department will be established within the Federal Government. On the whole, RM-9 promises closer cooperation with stakeholders and NGOs in addressing environment and natural resources concerns.

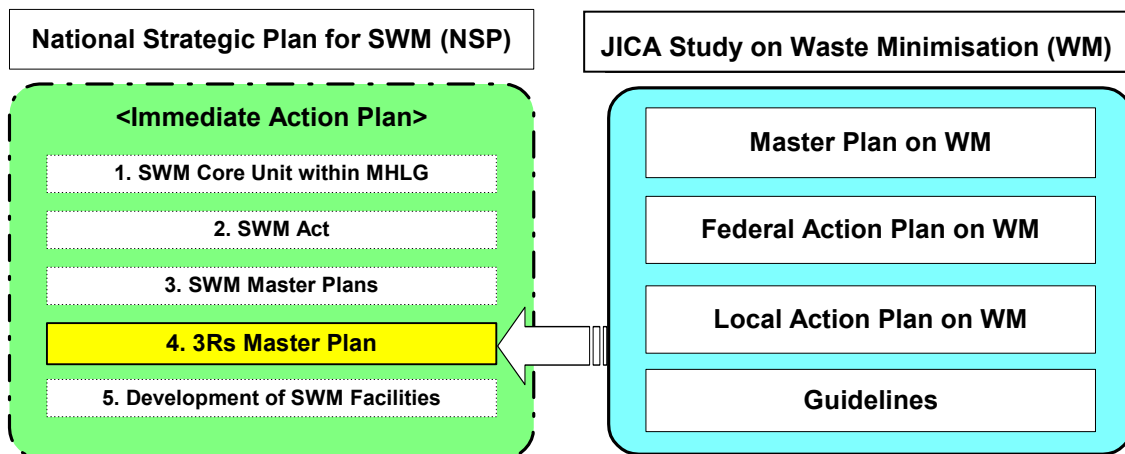
## **2.2 Solid Waste Management Plan**

### **2.2.1 ABC Plan (Action Plan for a Beautiful and Clean Malaysia)**

Responding to the urgency for proper solid waste management and public cleansing system arising from the increase in generation of solid waste and limited capacity of LAs in dealing with it, the Ministry of Housing and Local Government (MHLG), in 1988, formulated a National Policy on Municipal Solid Waste Management and a National Solid Waste Management Action Plan, which is denominated as ABC Plan (Action Plan for a Beautiful and Clean Malaysia). The importance of waste minimisation had already been clearly recognised and articulated in this ABC plan.

### **2.2.2 National Strategic Plan for Solid Waste Management**

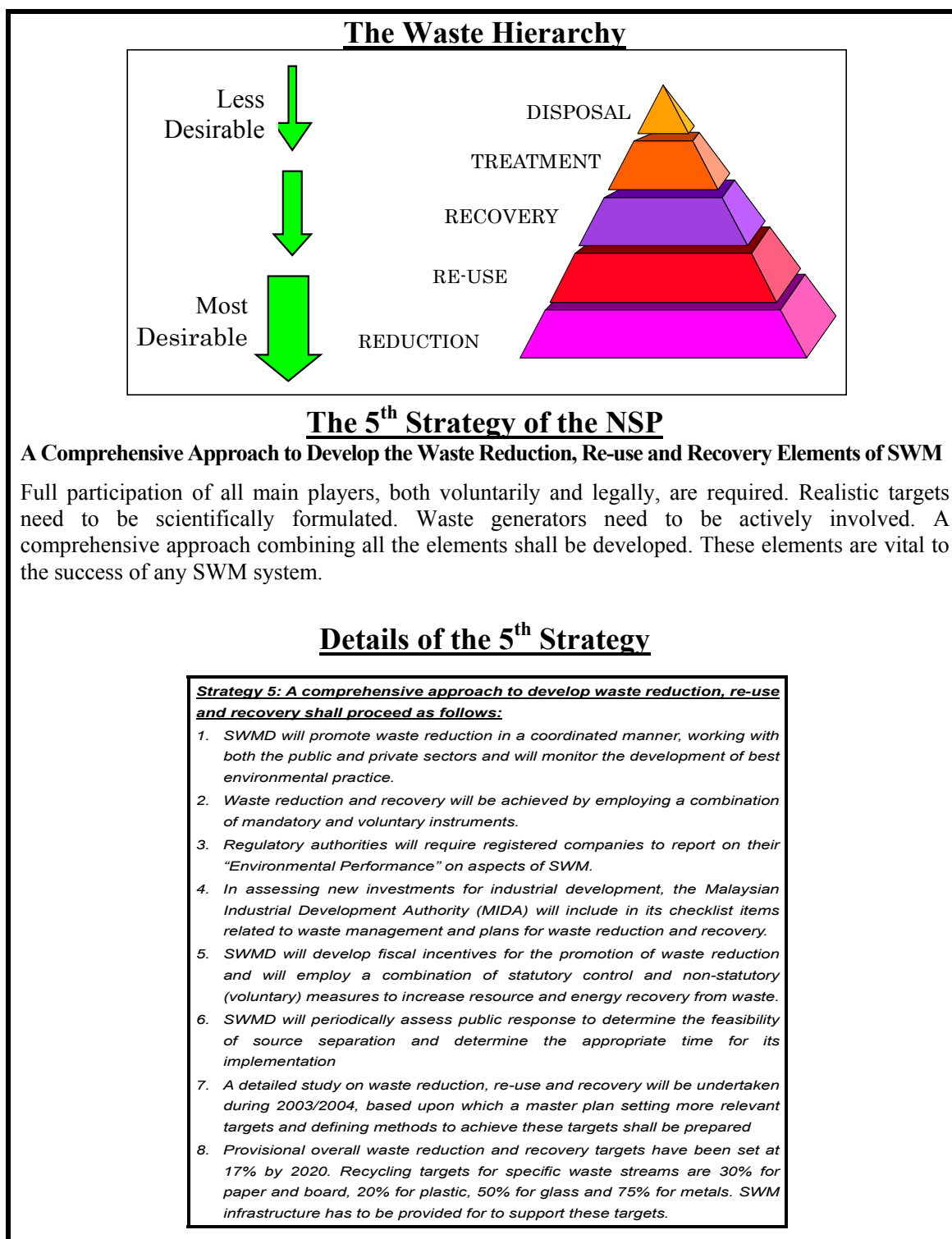
The National Strategic Plan for Solid Waste Management (NSP), which was first formulated in 2002 and adopted in 2005 after a series of reviews, provides the basis for SWM policies and measures in Peninsular Malaysia until 2020. The NSP sets out as a key strategy, that is, to achieve “Sustainable waste management through reduction, re-use and recycling and the use of appropriate technologies, facilities, and equipment to provide a sustainable and comprehensive solid waste management service”. The Action Plan, which was prepared as a guide to the Government of Malaysia and the relevant stakeholders in implementing NSP, recommends the activities to address SWM issues including the formulation of “3Rs Master Plan” which is the basis of this Waste Minimisation Master Plan as shown in the Figure 2.2.1 below.



**Figure 2.2.1 Waste Minimisation Master Plan within the Framework of National Strategic Plan for Solid Waste Management**

The NSP stresses the importance of waste reduction at the source of production. Whilst recognizing the individual efforts of some industries in this regard, the NSP also states that more needed to be done. The NSP pointed out the lack of legal or fiscal instruments that would influence the waste generators towards waste reduction. The “Zero Waste” concept was adopted by the NSP as a long-term commitment while setting out a number of tasks that should be implemented in the short term, such as the formulation of this Waste Minimisation Master Plan. Figure 2.2.2 below shows the waste hierarchy, the 3Rs strategy and the detailed tasks as they appeared in the NSP.

The first detailed task (Item 1 of Strategy 5 shown in Figure 2.2.2) designates the proposed Solid Waste Management Department (SWMD) with the overall responsibility for waste reduction. As stated earlier, RM-9 confirms GOM’s intention to establish this department. Following the adoption of the NSP, MHLG is now in the final stages of formulating the Solid Waste Management Act (SWM Act). The SWM Act is now under review by the relevant ministries, agencies and other stakeholders. The SWM Act will have some basic provisions regarding promotion of waste minimisation through 3Rs activities, and realisation of the NSP detailed tasks.



Note: The contents of Figure 2.2.2 are re-produced from the NSP Report (August 2005).

(1) The term "Recovery" used in the Waste Hierarchy in the NSP has the same meaning as "Recycle" used in this Report.

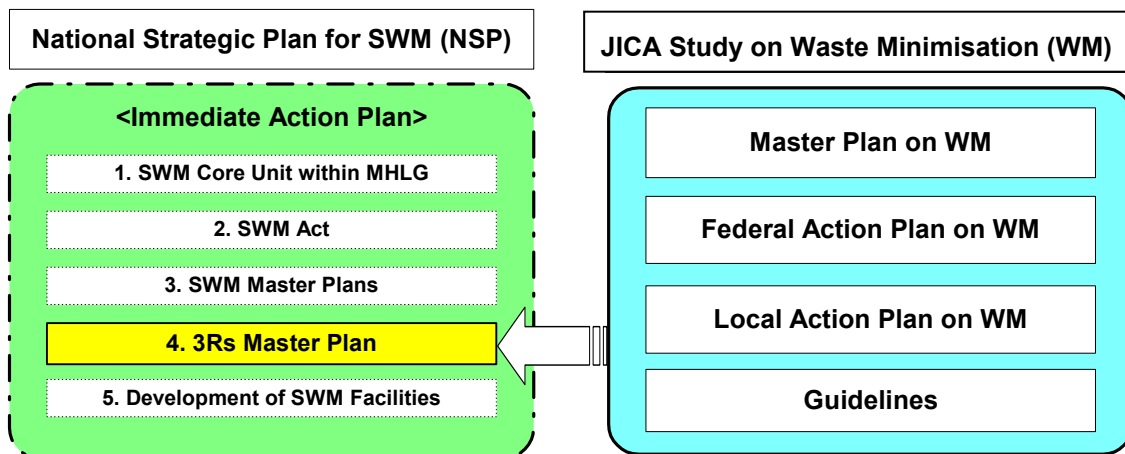
(2) The "reduction and recovery targets" set at 17% in item 8, has been revised by GOM to 22%.

**Figure 2.2.2 The 3Rs within the NSP**

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**Chapter 2 Waste Minimisation Master Plan within the Framework of National Solid Waste Management 2-1**

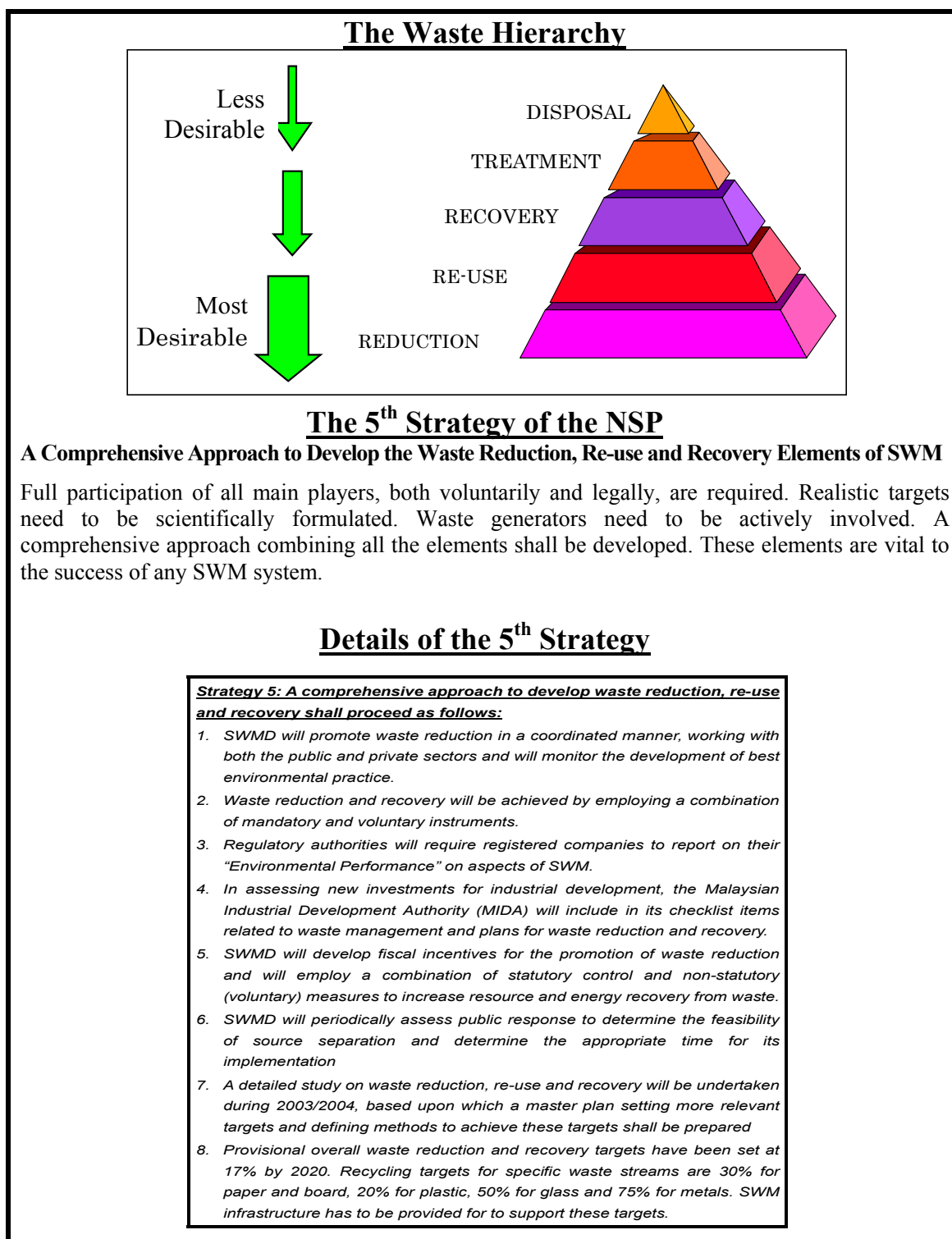
2.1 Related National Development Plans .....	2-1
2.1.1 Vision 2020 .....	2-1
2.1.2 Third Outline Perspective Plan (2001-2010).....	2-1
2.1.3 Eighth Malaysian Plan (2001-2005).....	2-2
2.1.4 Ninth Malaysian Plan (2006-2010) .....	2-2
2.2 Solid Waste Management Plan.....	2-2
2.2.1 ABC Plan (Action Plan for a Beautiful and Clean Malaysia) .....	2-2
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**Figure 2.2.2 The 3Rs within the NSP**



## **CHAPTER 3**

# **CURRENT CONDITIONS AND ISSUES OF WASTE MINIMISATION IN MALAYSIA**



## **CHAPTER 3 CURRENT CONDITIONS AND ISSUES OF WASTE MINIMISATION IN MALAYSIA**

This Chapter outlines the current conditions and issues of waste minimisation activities in Malaysia. Section 3.1 discusses the current SWM system and characteristics of solid waste in Malaysia followed by the current status of recycling activities. It also reviews the government initiative of waste minimisation under the National Recycling Programme of the Ministry of Housing and Local Government (MHLG). Section 3.2 discusses the issues identified based on the analysis of the current status of waste minimisation, that are the basis for the Waste Minimisation Master Plan and Action Plan at the Federal level.

More detailed discussions of the current conditions of waste minimisation are provided in the Supporting Report 1. It includes the current initiatives of waste minimisation by each key stakeholder, legal and regulatory mechanism, and detailed analysis on materials flows of major recyclable materials.

### **3.1 Overview of Current SWM System and Waste Minimisation Activities**

#### **3.1.1 Current SWM System**

In Malaysia, municipal solid wastes from households, business entities and institutions are managed under the responsibility of the LAs while industrial process waste and construction/ demolition waste are managed by the private waste management service contractors. Presently, approximately 95 - 97% of wastes collected in Peninsular Malaysia are brought for final disposal at landfills while the remaining 3 to 5% are diverted to recyclers/ re-processors and/ or self treated. Solid waste at final disposal landfills is reported to comprise mainly food waste and other organics (47% of the total waste weight), and the remainder comprising paper (15%), plastics (14%), metals (4%), glass (3%), and other materials including textiles, wood and rubber. In the process of collecting solid waste, some valuable recyclable materials are sorted by waste collection workers for selling to the middle buyers and traders although this amount is limited.

#### **3.1.2 Current Recycling Mechanism**

Currently, there are two main collection routes for recyclable materials in Malaysia. One route is through buy-back and/ or collection centres set up by LAs, concessionaires, NGOs and private organisations, and the other is by private collectors of recyclable materials. In either way, the collected recyclable materials are then sold to recycling factories or intermediate buyers. Such intermediate buyers also export a considerable amount of recyclable materials to other countries. Items such as clothing, books and toys are sometimes resold at charity shops and flea markets or donated. Furniture and other bulky items are donated if they are found to be usable. Waste separation at source led by the LAs as a process of SWM is practised only at a number of areas under the various pilot projects.

So far, composting of food and green waste is not practised in Malaysia on a large scale. Some LAs, for example Majlis Perbandaran Pulau Pinang (MPPP), have started collection and storage of electrical and electronic equipment and household hazardous waste such as used batteries and florescent tubes.

The current recycling rate in Malaysia has been reported to range between 2 and 5%. A number of LAs reported higher recycling rates; for example, MPPP reported a recycling rate of 9% in 2002. The difference in the claimed recycling rate among LAs mainly comes from the extent of recycling activities by private businesses captured by LAs. According to the survey

conducted in the Study, the estimated composition of household waste at source and recycling rate is summarised in Table 3.1.1.

**Table 3.1.1 Current Waste Composition and Recycling Rate**

Major Waste Components & Recyclables	Composition	Recycling Rate
Food Waste	49.3%	4.5%
Papers	17.1%	
Plastics	9.7%	
Glass	3.7%	
Ferrous Metal	1.6%	
Aluminium	0.4%	
Others	18.2%	

Source: JICA Study Team

### **3.1.3 Current Conditions of Recycling of Major Recyclable Items**

#### **(1) Paper**

There is a wide range of paper waste being collected for recycling in the market. These include: pure white paper, black and white paper, brown paper, old newspapers, magazines/books, cardboards, etc. The waste paper currently recycled are mostly collected at source such as from households (old newspapers, magazines), offices (computer papers) and commercial premises (mainly cardboards). However, the separation of paper at source is limited to certain paper categories that have higher values in the existing recycling market, such as old newspapers, magazines, computer papers and cardboards etc.

#### **(2) Plastics**

Plastics are actively collected for recycling recently due to the increase in demand of waste plastic materials caused by instable supply and price of petroleum products. A number of new plastic recycling players are also emerging in Malaysia. The collected plastics include PET bottles, HDPE, PE, PP, various plastic containers and other materials. The actual amount of plastic products manufactured yearly is difficult to identify due to a very wide range of products and a large number of small and medium- sized players. However, overall it is estimated that the current recycling rate of plastics in Malaysia is about 5%. Most of the waste plastics are not separated by households because of comparatively lower price in contrast to the other recyclables such as papers and metal scraps as well as the difficulty in keeping separately in the home due to their bulkiness. However, separation of plastic bottles, especially PET bottles, is being practiced in some commercial premises such as restaurants and hotels.

Another plastic waste type derived mainly from packaging waste is being observed at present. Based on the current and future trends of higher standards of living in Malaysia, it is envisaged that the amount of packages and packaging waste, composed mainly of plastic and a lesser amount of paper, glass and other materials, will dramatically increase in the near future. Therefore, special attention should be paid to packaging waste.

#### **(3) Glass Bottles**

The types of glass being recycled in the market are mostly glass bottles (beer, juices, wine, and sauces containers), jars (food, powder containers) and coloured or clear glass. The separation of glass at source is still low due to the low awareness of the public who are reluctant to store used glass because they are heavy, easily breakable and low in price in the recycling market. The

limited number of glass bottle manufacturers also makes it difficult to recycle glass bottles in Malaysia. However, some manufacturers of bottled products do collect glass bottles used in the franchised chain restaurants and fastfood restaurants for reuse.

#### **(4) Aluminium**

The current recycling rate for aluminium cans in Malaysia is estimated to be about 50%. However, this rate could be as high as 90%, particularly at some commercial premises such as restaurants and hotels. Due to the relatively high price for used aluminium cans, many of the waste aluminium cans are retained at source such as households, offices and commercial premises to be sold to recyclable collectors.

#### **(5) Scrap Ferrous Metals**

There is a wide range of ferrous metal products in the market; however, overall it is estimated that the current recycling rate of ferrous metals in Malaysia is about 25%, a rate that could be encouraged by the relatively high price for scrap ferrous metals. Much of the waste ferrous metals are sold to recyclable collectors.

### **3.1.4 National Recycling Programme (NRP)**

In 1988, MHLG drafted the “Action Plan for a Beautiful & Clean Malaysia” (ABC Plan) and this was followed by the first National Recycling Programme involving 23 LAs in 1993. The programme could be considered partly successful as the programme is still being sustained at three of the LAs that participated, namely, Majlis Perbandaran Petaling Jaya (MPPJ), Majlis Perbandaran Melaka (MP Melaka) and Majlis Dewan Bandaraya Kuching Utara (DBKU). The programme could not be maintained at other LAs and MHLG attributed the problem, amongst other reasons and factors, to the lack of market for recyclables in certain parts of the country, diminished public confidence due to poor collection services, lack of public awareness and promotion programmes, lack of participation by stakeholders, lack of LA personnel dedicated to the programme, and lack of policy and master plan for recycling.

Subsequently, MHLG set up the National Recycling Steering Committee chaired by the Minister and this represents the highest level of policy makers in the country. The current recycling initiative by the MHLG is referred to as the National Recycling Programme (NRP), which was re-launched in December 2000. The primary objective of the NRP is to inculcate the habit of the 3Rs. Further details of NRP are described in Supporting Report 1.

## **3.2 Major Issues of Current Waste Minimisation Activities**

The current major issues in relation to waste minimisation in Malaysia are identified as follows:

### **3.2.1 Increase in Amount of Solid Waste and Cost of Solid Waste Management**

As shown in Table 3.2.1, it is estimated that approximately 8.7 million tons of municipal solid waste is generated annually in Malaysia. With the projected growth of population and economy, the annual generated amount is estimated to reach about 15.7 million tons by 2020 if no additional action is taken for waste minimisation.

Malaysia currently spends about RM 860 million annually only for final disposal of solid waste. Based on this current spending, the final disposal cost of SW will be doubled into approximately RM 1.6 billion by 2020. The actual cost could be much higher, taking into account that stricter environmental management is required for the operation and closure of final disposal landfills.

**Table 3.2.1 Projection of Municipal Waste Generation in 2020**

(Unit: ton/year)

Year	2004	2020
Households	6,058,679	9,897,425
Business Entities	2,646,085	5,784,230
Total	8,704,764	15,681,654

Note: The data and projection method are described in Supporting Report 1.

### 3.2.2 Lack of Basic Data on Solid Waste Management and Recycling

Generally, the government is heavily dependent on the concessionaires and the LAs for SWM information and database. Although various parties have carried out waste generation and composition surveys, these surveys were conducted irregularly and on an ad hoc basis. This makes it difficult to chart and analyse the trend of waste generation. Furthermore, it is noted that lack of truck-scale in most landfill sites in Malaysia makes it difficult to capture the waste amounts disposed at the landfills. In particular, the data of solid waste generated from industries and construction/demolition activities could not be reliably identified due to the absence of a responsible agency within the government to capture such data.

With respect to data on waste minimisation and recycling, the government currently relies on information provided by the LAs that are participating in the National Recycling Programme (NRP). However, the level of accuracy of the data as well as the extent of recycling activities being properly captured by the respective LAs present some problems and questions. Furthermore, the method of estimating recycling rates is also not uniform among the LAs.

This lack of reliable data is a large obstacle for the government to properly identify the current state of solid waste management and recycling and this might in turn affect future policies on SWM and recycling. To implement sustainable SWM in the country, perhaps one of the key issues to address is the proper identification of current state of SWM and recycling based on systemised data collection.

Although MHLG has been making various efforts to raise awareness on recycling, the change in the behaviour of the general public towards recycling is still too slow.

The waste flow surveys on household and business entities found that people are aware of the recyclable items, such as old newspapers, magazines, cardboards, and aluminium and tin cans, that are currently being traded in the market at a certain price. By contrast, other items, such as glass and plastic bottles, are not recognised as valuable resources as their market value is relatively low. (Currently, plastic bottles are starting to be recognised as valuable materials due to an increase in their price at the recycling market). This type of mind-set is currently deeply enrooted in the general public in Malaysia.

An awareness raising programme has to focus on the necessity of waste minimisation in terms of resource scarcity and possible serious consequences of increasing waste generation and disposal for this will increase the cost of social overhead capitals and finally the living cost of the people. One of the big challenges facing Malaysia is changing the people's mind-set and understanding the necessity of waste minimisation.

### 3.2.3 Lack of Policies to Promote Waste Minimisation

So far, the focus of the Malaysian Government on SWM is how to efficiently manage the solid waste generated from various sources so as to minimise the burden to human health and environment, while the minimisation of such burden at sources has not been extensively addressed. Currently, the Government of Malaysia does not have a proper policy on waste

minimisation represented by the 3Rs (Reduce, Reuse, and Recycle). Although the SWM Act, which is currently being reviewed by the Government, may provide basic principles of waste minimisation, the Government still needs to formulate a concrete policy declaration on waste minimisation. Due to absence of such a policy, instruments such as laws, regulations, and financial and economic incentives still remain at ad-hoc levels and are generally not well-integrated to effectively promote waste minimisation.

Formulation of the basic policy on waste minimisation is the primary task of the government to officially declare and show its vision and intent to realise a future society with minimum waste and burdens to human health and environment.

### 3.2.4 Limited Information and Linkage among the Stakeholders

A large number of players are involved in recycling, as evidenced by Figure 3.2.1.

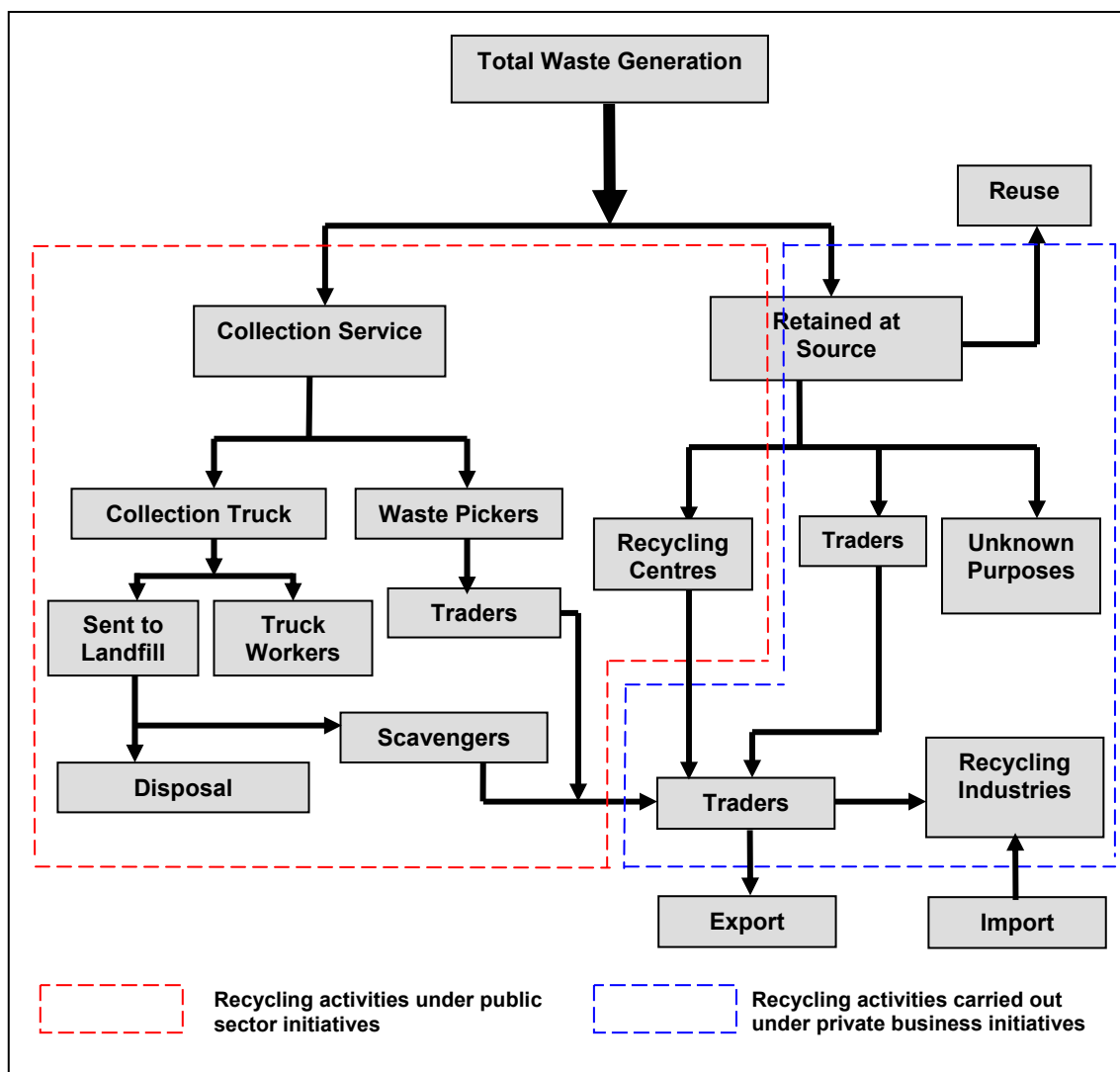


Figure 3.2.1 Players involved in the Recycling Activities

There needs to be a flow of information amongst these players in order that efficient recycling programmes, based on the needs of the end-users and implemented under the cooperation of the collection service providers, may be realised.

How the recyclables need to be separated at sources depends to a great extent on the requirements of those who receive, recycle and reuse them. However, such critical

information is not smoothly transferred among various recycling players, so that many recycling efforts have failed due to such information gap or miscommunications among them. The glass or plastic bottles separated at sources are sometimes not collected and remained piled up at recycling centres. There is also the case that some recyclable materials are not collected even though some of the existing recyclers are waiting for them to be collected. Programmes for source separation of recyclable materials should be designed to meet the requirement of those who finally receive and recycle them.

To avoid such information gap and miscommunication, linkage and networking among stakeholders are of great importance. Proper networking and linkage will contribute not only to increase efficiency of recyclables collection, but also to create new opportunities of recycling based on partnership among stakeholders. Such partnership is of great importance to realise the potential for recycling in Malaysia.

### **3.2.5 Instable Practice of Recycling Activities**

The current recycling activities in Malaysia are largely affected by the domestic and international market mechanism of recyclable materials. This dependence creates instability and fluctuation in the amount of recyclables collected by the private recyclers. To stabilize the trading of recyclable materials and continuously reduce the waste going to the landfill, the Government should formulate some policy measures. Especially for the recyclable materials that are not currently valuable in the market or greatly fluctuate in their values, actions such as value enhancement by source separation, intervention in the form of legal obligation on take-back by the manufacturers or provision of financial and economic incentives, and subsidised prices to the collection and use of recyclable materials, are required.



## **CHAPTER 4**

# **WASTE MINIMISATION MASTER PLAN**



## CHAPTER 4 WASTE MINIMISATION MASTER PLAN

This Chapter describes the Waste Minimisation Master Plan (WM-M/P) that has been prepared under this Study. The WM-M/P has been formulated considering the national objectives of environmental conservation and in line with the National Strategic Plan on SWM (NSP). The WM-M/P deals with the issues that are considered to be obstacles in the implementation of waste minimisation.

### 4.1 Objectives and Scope of the Master Plan

#### 4.1.1 Objective

The objective of the WM-M/P is to provide Vision, Strategies and Roles of Stakeholders to minimise the amount of solid waste disposed in Malaysia. The WM-M/P embodies the National Strategic Plan for Solid Waste Management (NSP).

#### 4.1.2 Target Waste

Taking into account current definitions and allocation of responsibilities for SWM in Malaysia, the WM-M/P covers the following types of solid wastes:

- Household waste
- Commercial waste
- Institutional waste
- Industrial waste
- Construction waste.

Among these waste types, the WM-M/P will mainly focus on the household, commercial (offices, restaurants, hotels, commercial and service establishments, markets, etc.), institutional, and non-processed industrial wastes, considering the similarity in nature and composition of these wastes and the urgent need of action to control them. For the other waste types such as processed industrial waste and construction/ demolition waste, the WM-M/P provides some recommendations regarding the institutional mechanism required to control them properly along with the proposed allocation of roles among the relevant government ministries and agencies.

#### 4.1.3 Target Area

The WM-M/P covers Peninsular Malaysia as well as East Malaysia, and applicable to all the States and Federal Territories.

#### 4.1.4 Target Year

The target year of the WM-M/P is set at the year 2020. This is the same target year adopted for the NSP and Vision 2020.

### 4.2 Vision

To realise *Material Cycle Society*<sup>1</sup>, it is of great necessity to reduce waste generation at source, to minimise the amount of waste disposed at landfills and to maximise the efficiency of resource utilisation.

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<sup>1</sup> The term, “Material Cycle Society” has been developed in the Law for Establishing a Sound Material-Cycle Society, which was enacted in 2000 in Japan, providing basic framework of minimising the waste

The ultimate vision of the WM-M/P is:

*“To realise a **Material Cycle Society**, where waste minimisation activities are systemised and sufficiently enrooted in the behaviour of government, private sector, and the people in Malaysia”*

Waste minimisation is represented in the WM-M/P by the efforts of 3 key stakeholders (private sector as the producers and providers of consumer goods, the general public as the consumers, and the government) in the 3Rs (Reduce, Reuse, and Recycle) which is defined below:

- **Reduction at source** is defined as the reduction in the amount of waste that will enter into the waste stream through changes in lifestyle and/or manner of consumption, improvement of manufacturing processes, green purchasing, and so on;
- **Reuse** is defined as the multiple use of a product in its original form, for its original purpose or for an alternative, with or without reconditioning; and
- **Material Recycling (or Recovery)<sup>2</sup>** is defined as the utilisation of waste for other purposes by processing (including segregation, washing, melting, transforming, etc.), but most of the fractions of waste shall be utilised as materials for other purposes.

Among the 3Rs above, reduction of waste at source must be given the first priority while reuse is subsequently promoted to minimise the waste generation at sources. For the materials that cannot be reduced or reused, material recycling is to be applied to their maximum possibility while the only remaining residue and non-recyclable materials are to be treated (using technology that includes thermal recycling or incineration) and disposed at landfills. The aim of M/P-WM is that all the stakeholders, i.e. general public, business and government, understand the principles of 3Rs and put them into practice by the year 2020. The NSP has set the target rate for waste recovery and reduction at 22% by the year 2020. Implementation of this WM-M/P is expected to greatly contribute towards realising this target.

## 4.3 Strategies

### 4.3.1 Outline

Based on an appreciation of current issues and to realise the vision and achieve the set target, strategies should be established, considering the need for:

1. A deeply rooted *awareness* within the Malaysian society on the importance of waste minimisation;
2. A mechanism of waste minimisation based on the *partnership* of government, private sector, and general public and participation of every stakeholder within the society;
3. Proper recognition and practice of waste minimisation sustained by market mechanism with *government involvement* in the development of the environment that encourages all participants to implement the 3Rs (Reduce, Reuse, and Recycle); and
4. Practice of waste minimisation in accordance with the hierarchy of 3Rs.

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through 3Rs (Reduce, Reuse, Recycle) activities. Definition of it is the society where the consumption of natural resources is minimised and the environmental load is reduced as much as possible.

<sup>2</sup> For the 3rd “R”, the term “Recycle” is used in this Study, whereas in the NSP, the term “Recovery” is used to. Both terms are considered to have the same meaning here.

Understanding and cooperation of the general public is the foundation of promoting waste minimisation in the whole society. In this regard, awareness of general public is of the most importance to promote waste minimisation.

3Rs activities can only be promoted and sustained provided the general public fully comprehends the need and urgency for waste minimisation. In instances where the materials that have not enough value to recycle on the current market mechanism, the voluntary efforts of relevant stakeholders are key to waste minimisation through material recycling. Reduction and reuse of materials also strongly depends upon the voluntary efforts of every stakeholder as waste generators.

The promotion of 3Rs activities is very much dependent upon the government. It needs to send a strong message to the general public, private sector and other stakeholders on the current issues of waste management and the necessity for waste minimisation. Understanding and support of the general public is essential for the government to formulate and implement the policies to promote waste minimisation.

Waste minimisation will only be achieved through realisation of 3Rs activities by all the stakeholders based on the real understanding of its necessity and support to the government policies.

Thus, the WM-M/P sets the following strategic targets to promote waste minimisation in Malaysia.

- ***Enhancement of Awareness on Waste Minimisation (Awareness)***
- ***Strengthening of Partnership for 3Rs Activities (Partnership)***
- ***Enhancement of Institution to Strengthen Government Policies on Waste Minimisation***

These strategic targets will only be achieved through partnership among the key stakeholders, namely the government<sup>3</sup>, the private sector<sup>4</sup>, and the general public<sup>5</sup>, all of whom need to understand and appreciate the necessity of waste minimisation, as shown in Figure 4.3.1.

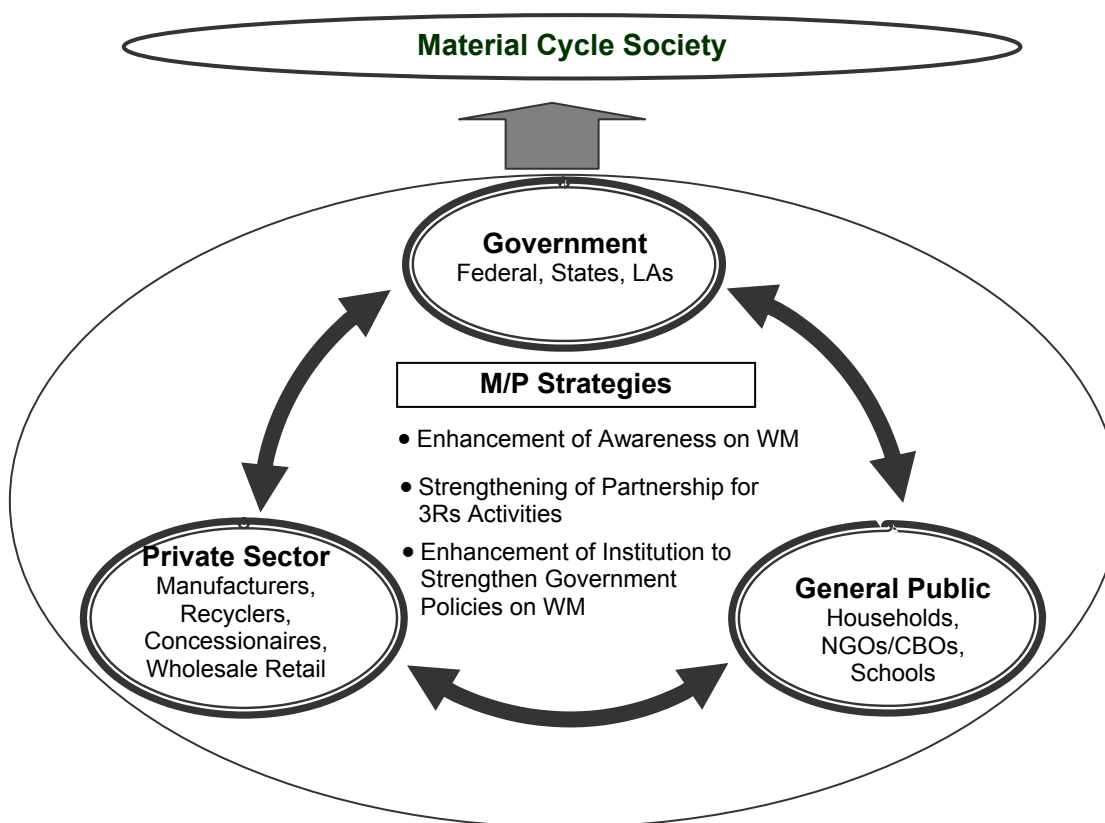
Facilities such as recycling centres and materials recovery facilities (MRFs) are also required for the 3Rs activities. The Government has authorised the NSP to incorporate in the study the development of the required MRFs within the country. Accordingly, strategy for the development of MRF facilities has not been included in this WM-M/P.

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<sup>3</sup> Government includes the three levels of Federal, State and Local Governments

<sup>4</sup> Private sector includes manufacturers, recyclers, service providers (including concessionaries), wholesale and retailers, etc.

<sup>5</sup> General public includes households, NGOs/CBOs, schools, etc.



**Figure 4.3.1 Three Key Stakeholders and Strategies for Waste Minimisation**

#### 4.3.2 Strategy 1: Enhancement of Awareness on Waste Minimisation

##### (1) Goal

All stakeholders have a proper understanding of waste minimisation.

##### (2) Why the Public Awareness Raising Needed

The concept of “reduce, reuse and recycle” is relatively new in the agenda of the Malaysian economy and general public. Indeed, to change the behaviour of the general public, the private sector and government and to generate more consciousness amongst these stakeholders is critical. Also, 3Rs is related to a series of activities that include purchasing, use, repairing, disposing the waste at designated places, discharging waste outside, collecting waste, separating items can be reused or recycled and so on. Public awareness raising and the practice of the 3Rs should involve all members of the community.

It is necessary to deepen the understanding of the public on the importance, meaning and the practices related to the 3Rs. Public awareness campaign should be implemented in a comprehensive manner to cover all sectors of society in order to produce the desired effect, that is, changing the behaviour of the general public to support 3Rs in the homes, working places, companies, shops, factories, schools, and the like. Every stakeholder should be made aware of the required behaviour towards waste minimisation behaviour and the respective 3Rs.

The general public should make effort to *reduce* waste generation during and after consumption of products through such activities as green purchasing<sup>6</sup> or carrying their own bags during shopping. *Reuse* of goods by buying refurbished second hand goods, reusing packaging materials and containers, and buying reusable and refillable goods are examples of required behaviour. The public can also actively support *recycling* through separation of valuables from the waste, bringing these materials to recycling centres, and actively participating in NGOs and CBOs recycling activities.

The private sector should also be made aware of waste minimisation behaviour. Product design, production lines, packaging, and transport activities should all be developed with an eye on *reducing* the waste generation during these activities. This sector should promote the system for return of the reusable materials and their *reuse* in the production process. Research and development of *recycling* technologies and developing industries recycling potential should be encouraged by the private sector.

The government also needs to be aware of the important roles it has to play towards waste minimisation. These include promoting awareness on waste minimisation behaviour; developing the legal, institutional and policy frames to support efforts in waste minimisation; and promoting optimum and cost-effective mechanisms for waste minimisation.

### **(3) Approach for Enhancement of Awareness by Each Targeted Stakeholders**

To raise awareness on WM among the target stakeholders, the government in cooperation with the relevant stakeholders, shall conduct a series of awareness raising activities including public relations, demonstration, and so forth.

#### **1) Raising Awareness of General Public on WM**

Taking into account the difficulty of changing the conventionalised behaviour of adults, awareness raising activities shall focus on underage people including school children. Children can also influence the awareness and behaviour of adults. In this regard, the mind-set and behaviour of younger people may have a great influence on the general public.

To raise awareness of young generation on 3Rs, education in school and participation in the community activities are good opportunities. 3Rs education in school and community-based 3Rs activities are of great importance in this respect.

The government must promote through public campaigns participation of young generation in 3Rs activities. These may include source separation of recyclable materials led by residential associations, communities and NGOs.

The government must also strongly call on family level participation in such activities so that the younger generation and adults can learn together the importance of waste minimisation. Cooperation among the government, RAs, communities, NGOs are also important to invite participation of general public in 3Rs activities.

#### **2) Raising Awareness of Business Entities on WM**

The actions to be taken for raising awareness of business entities on WM include waste minimisation through the introduction of cleaner production, maximised utilisation of recyclable raw materials for production, non or reduced use of packaging and container materials in the manufacturing and distribution of products, voluntary collection of used or consumed products through cooperation among manufacturers, distributors, and retailers. To promote these

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<sup>6</sup> Choosing less waste generating products, long-life products, non-disposable and refillable products, etc. are examples of green purchasing.

activities, awareness raising and participation of corporate managers in 3Rs activities are of great importance.

### 3) Awareness Raising of the Government on WM

Within the government sector, raising awareness should focus on local government, who is responsible for proper municipal solid waste management. Reduction of waste disposal landfill is also one of the mandates of local government as the municipal waste management service provider.

In this respect, the national government shall inform the top administrators of local governments the national policies on waste minimisation and guide them to implement collection of recyclable materials based on separation at sources and organise general public, businesses, RAs, NGOs, and other relevant stakeholders to promote 3Rs activities in their localities.

To raise awareness of top administrators of local governments, the national government shall also establish the awards of local governments that achieve the best performance of 3Rs activities, as well as disclose the information of the efforts of local governments to the general public.

### (4) The Leaders of Awareness Raising

In promoting the 3Rs activities among the key stakeholders, raising the awareness of leaders and leading organisations within the community, locality, business community, and NGOs are of great importance. These leaders and leading organisations are the champions of waste minimisation who may have a relatively higher consciousness towards waste minimisation and who may have already put that awareness into practice. To increase the quantum of such leaders and leading organisations, the government needs to establish the opportunities of awarding them as well as facilities or avenues for them to exchange information and experience amongst themselves and to provide more information on 3Rs activities through seminars and workshops.

Table 4.3.1 shows the examples of such leaders and leading organisations with their possible roles in leading 3Rs activities.

**Table 4.3.1 Key-personnel/ Organisation Leading Awareness Raising Activities**

Key personnel/ organisation	Description
1. Community leader/ local champion	Awareness raising actions shall be preferably led by the community leaders and/or local champions who are really willing to carry out the actions, and with the leadership of the LA where such community leaders are not found.
2. Business / industry associations	The business and industrial associations are the best focal points for initiating awareness raising actions towards business entities. In Japan, such associations in many cases promote the initiative for 3Rs in the business entities and the achievement of member entities are periodically reported to be compiled and publicised by them. Announcement of the activities in relation to 3Rs provides good publicity for the business entities in Japan.
3. Top management	To enroot 3Rs activities into each employee of business entities, a decision by top management to participate in the 3Rs actions is essential. In this regard, involvement of top management of business entities in planning the awareness raising actions is of great importance since this kind of top-down Task works efficiently to disseminate the awareness of 3Rs among the employees.



Key personnel/ organisation	Description
4. Schools	Schools have an important role in enhancement and implementing of waste minimisation activities. Waste minimisation practices and habits should be inculcated into the younger generation via their co-curricular activities. In the process, the children will indirectly educate their parents and siblings as well. Also, the school teachers' capacity will be developed.

### **(5) Raising Awareness Through Mass Media**

Although public campaign through mass media such as newspapers and TVs is one of effective methods to raise awareness of general public, it is usually regarded as a one-way flow of message to the users.

To increase public awareness of 3Rs activities, active participation and feedback of readers and viewers of the media is required. The tactic of sending messages to the public must also be accompanied by a means for them to reciprocate or provide feedback. The media need to establish a platform, such as the website, for information exchange and discussion. Indeed, access to the Internet might encourage the public to participate more freely in discussions on 3Rs.

Aside from the use of mass media, the open forums and public dialogue meetings at local level are also good opportunities for the public to openly discuss the issues of solid waste management and 3R activities. The roles of local champions and leading organisations are essential to make such occasions into success in promoting 3R activities at local level.

#### **4.3.3 Strategy 2: Strengthening of Partnership for 3Rs Activities**

##### **(1) Goal**

As the cost-efficient measures of waste minimisation, the M/P shall give the priority to reduction at source and reuse. Awareness of stakeholders is key to the promotion of reduction at sources and reuse of waste.

Reduction of waste at sources mainly consists of:

- Green purchasing
- Use of less packaging

Reuse includes:

- Utilisation of reusable and refillable packages and containers
- Usage of re-built parts and second-hand goods

Material Recycling is the action of returning the used/consumed materials to the production process as recyclables instead of disposing them as waste. Although the effect of material recycling upon waste minimisation is strong, it is difficult to sustain if the materials have enough value to trade in the market. Material recycling mainly consists of:

- Promotion for source separation
- Collection of recyclables before being discarded as waste
- Collection of recyclables after being discarded as waste

As these 3R activities cannot be carried out by the efforts of single stakeholder, building of partnership among the stakeholders in nationwide is the goal of this strategy.

## **(2) Why Partnership Needed**

To effectively implement 3R activities, partnership among the stakeholders is essential. The linkage among separation of recyclables at sources, collection of recyclables, and use of recyclables by end-users cannot be built only by a single stakeholder.

For example, reduction on the use of packaging and containers can only be realised based on the partnership among the manufacturers, distributors and consumers of relevant goods.

Reuse of materials by consumers also has limitation if every consumer carries out such efforts only individually. The possibility of reuse is extended if reuse of materials is carried out involving various consumers. To realise such exchange of used materials, the place and opportunity to exchange reusable goods need to be established in partnership with the relevant stakeholders.

Partnership among stakeholders is also indispensable to build proper recycling system. To recycle used materials, waste generators, collectors, recyclers, and users of recycled materials must have proper linkages to close the loop of recycling.

Recyclables materials are required to be properly segregated at sources to maintain its quality as raw materials while the recyclers must process the collected materials to the raw materials in accordance with the quality requirement by their end-users.

Thus, the partnership among stakeholders is the foundation of promoting 3R activities.

## **(3) Partnership to be Built to Promote 3R Activities**

### **1) Necessity of Partnership for 3Rs**

#### **a. For reduce**

The effect of waste reduction at sources has its limit if the relevant stakeholders carry out such efforts only individually. However, under the partnership and cooperation with each stakeholder involved in the process from manufacturing the goods to their consumption and disposal, reduction of waste can be achieved at much bigger and extensive scale.

A typical example of such efforts can be found in the efforts of reducing packaging and container waste. To reduce generation of packaging and container waste at sources, the consumers' strong intent of refusing excessive packaging of goods and use of containers is required in their behaviour of choosing and purchasing goods. On the other hand, the manufacturers and wholesalers are also required to provide the consumers with the goods of no or less packages and containers to meet the need of consumers. The awareness of manufacturers, distributors, and consumers needs to be synchronised with each other towards reduction of packaging and containers waste.

#### **b. For reuse and recycle**

To promote reuse and recycling, proper coordination and linkage is required for all the process consisting of separation of reusable/recyclable materials at sources, establishment of collection points, transportation by collectors, reuse and/or recycling of collected materials to manufacture the goods. Recycling system becomes sustainable only if all of the above process and linkage is properly built and sustained in accordance with the

required conditions of every stakeholder involved in the process. In this regard, the system needs to be continuously supervised each other and maintained by the external promoters of 3R activities such as the government and NGOs.

## 2) Partnership Building

### a. Partnership building within the stakeholders

Partnership building within the stakeholders shall be promoted. Activities that may be implemented in this regard are as follows:

- *Partnership within relevant NGOs*
  - *Exchange of information among the NGOs conducting 3R activities at local levels to further raise awareness between each other.*
  - *Cooperation between NGOs to dialogue with the government for promotion of waste minimisation*
- *Partnership within the recycling industries –*
  - *Exchange of information among recycling industries*
  - *Standardisation of recyclable materials*
  - *Data management on recyclable materials*
  - *Dialogue with the Government*
  - *Awareness raising among the recyclers*
- *Inter-ministerial/agency partnership –*
  - *Formulation and implementation of guidelines for reducing the waste from government buildings and facilities to show initiative of the government by doing 3Rs by itself.*
  - *Formulation and implementation of guidelines for green purchasing to show the government initiative by taking the concrete actions*
- *Inter governmental partnership at local level –*  
*Establish inter-local council for WM to carry out:*
  - *Exchange of information among LAs*
  - *Dialogue with the national government*
  - *Awareness raising of general public*
  - *Capacity building of the LAs that are behind others in terms of WM activities.*
- *Partnership within business entities –*  
*Establish the 3Rs forum among the business entities active in 3Rs activities to carry out:*
  - *Awareness raising of general public*
  - *Policy dialogue on waste minimisation*
  - *Promotion of 3Rs activities among private sector*
  - *Formulation of WM plan in businesses*

### b. Partnership between the key stakeholders and other stakeholders

Partnership between the key stakeholders and other stakeholders shall be developed. NGOs and CBOs currently play important roles not only in training and educating the

general public and business entities but practicing 3Rs activities as well. They are also organising the communities and residents to conduct 3Rs activities including collection of recyclables, and operation of buy-back/drop-off centres. The partnership with NGOs and CBOs is indispensable especially in their role as promoters of grass-root 3Rs activities among the general public.

**Table 4.3.2 Partnership Building among Key Stakeholders**

Key Partners	Description
General Public with Residential Associations/ NGOs	<ul style="list-style-type: none"> <li>▪ Support of community-based 3Rs activities by RAs and NGOs</li> <li>▪ Active participation by general public in the 3Rs activities organised by RAs and NGOs</li> </ul>
Residential Associations/NGOs With recycling players	<ul style="list-style-type: none"> <li>▪ Support by recycling players in managing and maintaining the collection points of recyclables (buy-back and drop-off centres)</li> <li>▪ Support by recycling players in collecting the recyclable materials from the collection points established by RAs and NGOs.</li> </ul>
LAs with Residential Associations/NGOs	<ul style="list-style-type: none"> <li>▪ LAs support for 3Rs activities by RAs and NGOs through awareness raising campaigns, establishment of collection points for recyclables, involvement of recyclers in the activities</li> <li>▪ Active participation and cooperation by RAs and NGOs in the 3Rs activities promoted by LAs</li> </ul>
Manufacturers with general publics (consumers)	<ul style="list-style-type: none"> <li>▪ Providing information from manufacturers to general public on the recyclables (instruction on how to recycle and how to discard the used products)</li> <li>▪ Labelling on the recyclable products by manufacturers</li> </ul>
Companies with industrial associations	<ul style="list-style-type: none"> <li>▪ Support by industrial associations for the 3Rs activities by individual business entities.</li> <li>▪ Active participation and sponsoring by individual business entities in the 3Rs activities led by industrial and business associations</li> </ul>

#### **(4) Focus of Partnership Strengthening**

Strengthening the partnership among stakeholders for promoting 3Rs shall focus on the following points:

- Partnership building through implementation of pilot 3Rs activities

Pilot 3Rs activities are promoted for the purpose of identifying the potential 3Rs activities and participants in the localities. Based on the evaluation of such pilot activities, the direction of strengthening the partnership will be identified at local level.

- Identification of leaders and leading organisations for promoting 3Rs

Identification of leaders and leading organisations are the key to establishment of partnership among the stakeholders. Partnership building shall be promoted under the initiative of such leaders and leading organisations.

#### **4.3.4 Strategy 3 : Enhancement of Institution to Strengthen Government Policies on Waste Minimisation**

##### **(1) Goal**

Those stakeholders' mind-set and partnership need to be supported by establishment of the legal/regulatory, incentive, and institutional mechanisms. In this respect, the Master Plan clarifies the concept on establishment of basic framework for laws/regulations, incentives, and institutional mechanisms. The strategy for establishment of such framework is as follows.

Strategy 3-1: Establishment of Legal and Regulatory Framework

Strategy 3-2: Strengthening of Financial and Economic Incentive

Strategy 3-3: Capacity Development of the Government Sector

## **(2) Strategy3-1: Establishment of Legal and Regulatory Framework**

### 1) Why Legal and Regulatory Framework Needed

As far as solid waste can be disposed easily at lower cost, motivation to waste minimisation is difficult to be built among the waste generators. In this regard, the legal framework for solid waste management needs to be built to properly control construction of treatment and disposal facilities of solid waste. It is also necessary to establish the national policy clearly stating the intent of the government to minimise the disposal of waste at landfills through waste minimisation.

With regard to waste minimisation, roles and responsibilities of stakeholders and economic incentives also need to be legally provided by the relevant laws.

### 2) Legal and Regulatory Framework

Laws and regulations required for promoting waste minimisation are:

- a. Solid Waste Management Act, as the foundation of defining waste minimisation activities
- b. National Waste Minimisation Master Plan and Action Plan
- c. Local by-laws on solid waste management and waste minimisation
- d. Relevant laws and regulation to promote recycling

#### a. Solid Waste Management Act as the legal foundation

The Federal Government is currently in the process of preparing the Solid Waste Management Act (SWM Act), which will provide basic principle of overall solid waste management in Malaysia. Therefore, the Solid Waste Management Act will be the legal foundation of all relevant activities in relation to SWM including waste minimisation through 3Rs, which is provided in this Master Plan. The objectives and visions of this Master Plan have to be supported by, and be compatible with the SWM Act. Although general provisions regarding waste minimisation are to be determined in the SWM Act, detailed rules, regulations, and plans are required to be formulated.

If regulatory measures on 3Rs are provided, rules & regulations under the act should clarify roles, mandates and sanctions of concerned players.

The mandates of national and local governments have to be clearly provided in the Act. The mandates of the national government shall include policy formulation on waste minimisation, provision of information, technological development, economic incentives for promoting recycling, and capacity development of local government, and so forth.

The mandates of local government may shall include proper management of solid waste and waste minimisation at local level, and guide general public and businesses to participate in waste minimisation activities.

#### b. National Waste Minimisation Master Plan and Action Plan

The Master Plan on Waste Minimisation provides vision and strategies, while the action plan provides activities to drive 3Rs and supports the legal measures.

c. Local by-laws on solid waste management and waste minimisation

Considering the difference in scale of economy, socio-cultural background, locally available technologies and human resources for 3Rs activities, the Master Plan adopts the strategy that detailed rules and regulations on waste minimisation are to be determined at the local levels. The local-based approach to be embodied in the “Local Action Plan on Waste Minimisation” and institutionalised into State/Local by-laws.

Taking into account the difference in current conditions of waste minimisation as well as available resources, detailed rules, regulations and plans are to be prepared under the initiative of state and/or LAs. As to the rules and regulations, the state/local authorities can utilise existing by-laws in relation to waste management such as anti-littering by-laws, solid waste management by-laws.

d. Relevant laws and regulations to promote recycling

Although voluntary partnership among the stakeholders is the basis of waste minimisation to be provided in the SWM Act, the government may face difficulty in promoting WM for some materials. In such a case, specific laws and/or regulations shall be examined to promote WM of such materials. Laws and regulations on green purchasing and introduction of Extended Producers Responsibility (EPR) are such legal/regulatory options among others.

**(3) Strategy 3-2 : Strengthening of Financial and Economic Incentives**

1) Why Incentives Needed

The market supports the active recycling of some items of value, such as used paper and aluminium cans. On the other hand, the low market values and fluctuations in prices for used glass bottles and plastic wastes tend to discourage active recycling of these items.

Incentives are proposed in order to stabilise and further enhance recycling activities in Malaysia. These incentives need to focus on strengthening the domestic market and domestic recyclers and manufactures.

2) Incentives to support 3Rs Activities

In principle the WM-M/P proposes two directions for developing the incentives:

- The disbursement of funds to LAs as financial support for waste minimisation activities
- Development of economic incentives to support waste reduction and recycling activities

**(4) Strategy 3-3: Capacity Development of the Government Sector**

1) Why Capacity Development Needed

Under the policy of federalisation of SWM and as stated in the RM-9, GOM has decided to establish a Solid Waste Management Department (SWMD) at the Federal Government level to oversee SWM. It is therefore expected that the Federal Government will play a pivotal role in waste minimisation in the future.

The GOM related officials have been developing their skills in many fields of SWM; however, more capacity development is required in the field of waste minimisation and specifically to successfully implement the action plans.

## 2) Focus of the Capacity Development

Capacity development will focus on information management as well as development and implementation of LA plans on waste minimisation.

## 3) Applications

This strategy proposes developing the government sector capacity for maintaining the Information Management System (IMS) and preparing the LAP-WM.

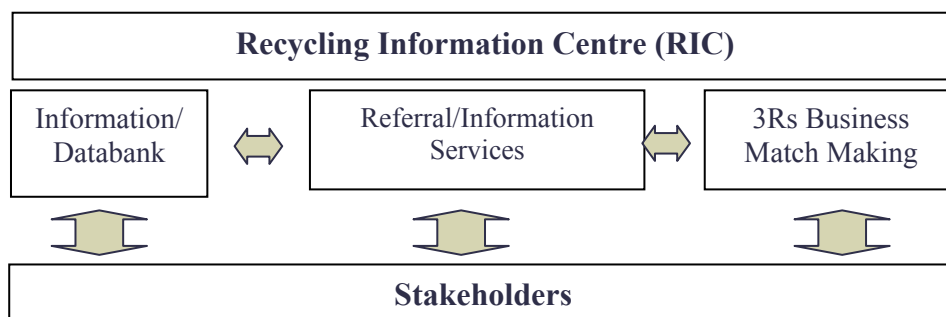
### a. Improvement of Information Management

The WM-M/P defines the Federal Government as the focal point of all information and data on waste minimisation so that it can always identify the current SWM situation. Whereas the Ministry of Natural Resources and Environment (MONRE) already has its own database built on collected data from generators, collectors, and treatment providers of scheduled waste, MHLG is presently preparing to establish the so-called Recycling Information Centre (RIC) within MHLG. The RIC is to take the main role in information/data management and analysis in relation to waste minimisation activities of municipal solid waste. The LAs on the other hand have the main role to collect the data and ensure that it is accurate as much as possible. Therefore capacity development for both the RIC and the LAs to maintain the IMS is very important.

Furthermore, RIC is developed not only as the focal point of information and data on waste minimisation, but also as the centre for the following functions in relation to waste minimisation:

- Referral centre for 3Rs players, technologies, and products
- Services for 3Rs business match-making
- Information support services for 3Rs players

The schematic diagram of the RIC in the WM-M/P is illustrated in Figure 4.3.2.



**Figure 4.3.2 Schematic Diagram of RIC in the Master Plan**

### b. Formulation of Local Action Plan on Waste Minimisation

The LAP-WM is to be formulated in accordance with the "Guidelines for Formulation of Local Action Plan for Waste Minimisation" (refer to Volume II of this Report).

#### **4.4 Roles of Stakeholders**

The WM-M/P strategies need to be implemented by the three key stakeholders, the general public, the government and the private sector. The WM-M/P strategies identify most of the responsibility and roles of the stakeholders.

##### **(1) General Public**

- Refusing waste as conscious consumer
  - Returning to the retailers of the packaging and containers that immediately becomes solid waste (e.g. plastic bags, food trays)
- Reducing waste as waste generator
  - Segregation of recyclable materials at sources in accordance with the recycling mechanism applied in its locality.
  - Reducing waste by composting etc,

##### **(2) NGOs, CBOs and RAs**

- Bridging community with the relevant stakeholders
  - Organising LAs, recyclers, haulers, and end-users of recyclables to support community-based 3Rs activities.
  - Providing information on relevant stakeholders
- Leading role in awareness raising and organising communities for 3Rs such as proper source segregation of recyclable materials
  - Awareness raising of general public on 3Rs
  - Organising 3Rs activities including source separation of recyclables at community level

##### **(3) Government**

###### **1) Federal Government**

- Formulation and promulgation of the basic policy on national waste minimisation such as legal and economic instruments
- Promoting and supervising roles through information/data collection and management
- Provision of incentives to promote 3Rs activities by stakeholders.

###### **2) State Government/Local Authority**

- Focal point on information, that is, collection of data and information on SWM and 3Rs
- Formulation of Local Action Plans on waste minimisation
- Policy implementation through Local Action Plans on waste minimisation and their implementation
- Coordination among relevant stakeholders in establishing and maintaining the recycling system in its locality
- Creation of opportunities for exchange of information among the LAs
- Joint implementation of awareness raising activities of general public with LAs



#### **(4) Private Sector & Institutions**

##### 1) Business Entities

- Refusing waste by proper purchase
- Reducing waste as waste generator by cleaner production
- Recycling partner by Segregation of recyclable materials at sources in accordance with the recycling mechanism applied in its locality
- Sharing information and raising awareness on 3Rs through its network such as business association, especially for SMEs

##### 2) Producer and Retailer

- Promoting the use of reusable/refillable containers
- Examination on voluntary taking-back of packages and containers based on EPR
- Provision of product information that are useful for reuse and recycling
- Design and manufacturing of eco-friendly products
- Establishment of the organisation to certify eco-friendly products
- Creation of the opportunity to provide information of 3Rs

##### 3) Concessionaires

As the organisation responsible for waste management at the local level, concessionaires shall have the following roles:

- Establishment of their own recycling system as waste management player
- Sharing information and raising awareness on 3Rs

##### 4) Recycling players

Collectors and recyclers of materials play significant roles in maintaining the recycling system in their service areas and localities. They need to play the following roles at the local level recycling activities.

- Cooperation in community-based collection of recyclable materials based on separation at sources
- Registration as recyclers, if required by legislation

##### 5) End users

The loop of recycling is closed when the collected recyclable materials are used for manufacturing the recycled products. In this regard, the role of end-users of recyclables is of great importance. To cooperate in the implementation of the national waste minimisation policies and further promote recycling, the following roles are to be taken by end users:

- Efforts of receiving and utilising recycled materials
- Linkage with recycling players
- Provision of information to general public and awareness raising on recycling
- Awareness raising of general public and businesses especially on separation of recyclables at sources



## **CHAPTER 5**

# **ACTION PLAN AT THE FEDERAL LEVEL**



## CHAPTER 5 ACTION PLAN AT THE FEDERAL LEVEL

### 5.1 Introduction

This Chapter describes the Waste Minimisation Action Plan at the Federal Level which has been prepared to be in line with the strategies formulated under the Waste Minimisation Master Plan.

#### 5.1.1 Objectives of the Federal Action Plan

The Objectives of the A/P are set as follows:

- To realise the strategies of the Master Plan on National Waste Minimisation by setting priority action.
- To provide recommendations on programmes and actions to be undertaken by the Federal Government.

(Reference)

Strategies of the Master Plan

- *Enhancement of Awareness on Waste Minimisation (Awareness)*
- *Strengthening of Partnership for 3Rs Activities (Partnership)*
- *Enhancement of institution to strengthen government policies on waste minimisation*

The target year of the A/P is set at the year 2010 to be in line with the Ninth Malaysia Plan.

#### 5.1.2 Interfacing of Master Plan and Action Plan

The Waste Minimisation Master Plan (WM-M/P) whose target year is set at 2020, has been prepared to lead the country towards the realisation of an *Environmentally Sustainable Society* based on the concept of 3Rs - Reduce, Reuse and Recycle.

The Action Plan (A/P) whose target year is set at 2010, has been prepared in line with strategies of the WM-M/P. The A/P provides detailed activities with annual time schedules and cost estimates. The A/P is prepared based on the following conditions.

- i. The three components of 3Rs, i.e. Reduce, Reuse and Recycle, are included in the actions.
- ii. Practical actions that take into account current issues on waste minimisation are recommended in the A/P.
- iii. The results and lessons of the pilot projects are reflected in the plans.

The relationship between the Master Plan strategies and the Federal Action Plan is shown in Table 5.1.1.

Outline of the A/P is shown in Table 5.1.2.

## **ACTION 1: ENHANCEMENT OF AWARENESS RAISING ACTIVITIES UNDER THE NATIONAL RECYCLING PROGRAMME (NRP)**

### Background

An Awareness Raising Campaign is currently being carried out under the NRP led by MHLG whilst public awareness on 3Rs is being promoted using various media and tools. As NRP is the core activities in awareness raising, strengthening NRP is important. Also, the promotion of using recycled/ environment-friendly products and/or green purchasing is also an important component to be incorporated into the practice of 3Rs. It is crucial that consumers are informed on products that are recycled and environment-friendly and companies that are partners in environment-friendly production methods.

Raising awareness amongst the younger generation is addressed in Action 2.

### Objective

To raise public awareness on waste minimisation and to promote the practice of 3Rs

### Description of Activities

#### **A1-1: Improvement of the National Recycling Programme**

The National Recycling Programme (NRP) should be improved with wider participation of the LAs and other stakeholder partners which include other Government agencies, concessionaires, public sector, NGOs and the like. Nation-wide events and programmes; such as 3Rs award for the best residential association (RA), private companies and/ or schools, should be organised and implemented under the NRP. These events and programmes could culminate in an award-giving ceremony, preferably coinciding with the National Recycling Day (NRD).

The proposed improvement plan of the NRP including strengthening of on-going efforts on awareness, in line with the Waste Minimisation Master Plan, is shown in the attached Appendices for Action - 1.

Activities include the following:

- (1) Examination of past activities of the NRP
- (2) Strengthening of materials, media tools and campaigns
- (3) Re-organisation of the NRP of Participating LAs, infrastructure arrangement, public awareness, data management

#### **A1-2: Implementation of Nation-wide Awareness Campaign on Source Separation**

To introduce source separation widely in Malaysia as recommended in Action 3, nation-wide awareness campaign on “*Source Separation*” should be organised and implemented using the mass media (TV, radio and newspaper), re-organising national events, and updating the MHLG website in line with the National Recycling Programme (NRP). Action on source separation is explained in greater depth in Action 3.

Activities include the following:

- (1) Formulation of nation-wide awareness plan on source separation with collaboration of partners

**Table 5.1.1 Master Plan Strategies and Federal Action Plan**

M/P Strategies	Federal Action Plan
Strategy-1: Enhancement of Awareness on Waste Minimisation	Action-1: Enhancement of Awareness Raising Activities under the National Recycling Programme (NRP)
	Action-2: 3R Activities in Schools
Strategy-2: Strengthening of Partnership for 3Rs Activities	Action-3: Formulation of Stakeholders' Networking and Development of Partnership Activities on 3Rs
Strategy-3: Enhancement of Institution to Strengthen Government Policies on Waste Minimisation	Action-4: Strengthening of Legal, Regulatory and Financial Mechanism
	Action-5: Improvement of Information Management
	Action-6: Provision of Guidance to LAs on LAP-WM

**Table 5.1.2 Outline of the Federal Action Plan**

Master Plan* <sup>1</sup>	Action Plan* <sup>2</sup>		Target/ Performance Indicators	Responsible Agencies	Cost (RM)* <sup>3</sup>	Schedule				
	Strategies	Actions				Detailed Activities	2006	2007	2008	2009
1. Enhancement of Awareness on Waste Minimisation	Action-1: Enhancement of Awareness Raising Activities under the National Recycling Programme	A1-1: Improvement of the National Recycling Programme	Households interview survey nation-wide to determine extent of strengthened public awareness on 3Rs	MHLG	15,625,000	■	○	.....	.....	.....
		A1-2: Implementation of Nation-wide Awareness Campaign on Source Separation		MHLG, LAs		■	.....	.....	.....	
		A1-3: Development and Training of Leaders for Promotion of 3Rs		MHLG, LAs		■	.....	.....	.....	
		A1-4: Promotion of Green Purchasing and Waste Reduction at Source		MHLG, MITI		■	.....	.....	.....	
	Action-2: 3Rs Activities in Schools	A2-1: Dissemination of the “Guidelines for the Enhancement of 3Rs Activities in Schools”	10 LAs & 4 States implement School 3Rs programme	MHLG, MOE	6,640,000	■	.....	.....	.....	.....
		A2-2: Formulation of Award Programme for 3Rs Activities in Schools		LAs, States		■	.....	.....	.....	
		A2-3: Implementation and Monitoring of 3Rs Activities in Schools		Pupils, Teachers, LAs, States		■	.....	.....	.....	
2. Strengthening of Partnership for 3Rs Activities	Action-3: Formulation of Stakeholders’ Networking and Development of Partnership Activities on 3Rs	A3-1: Formulation of National Annual Plan for Organising Stakeholders’ Networking and Implementation of Source Separation	Recycling rate reaches 11% in 2010	MHLG	123,075,000	■	.....	.....	.....	
		A3-2: Formulation of Stakeholders’ Networking		LAs, Private sectors		■	.....	.....	.....	
		A3-3: Implementation of Pilot 3Rs Activities		LAs, States		■	.....	.....	.....	
		A3-4: Development of Partnership Activities on 3Rs by NGOs/ CBOs		MHLG, LAs, NGOs/CBOs		■	.....	.....	.....	
3. Enhancement of Institution to Strengthen Government Policies on Waste Minimisation	Action-4: Strengthening of Legal, Regulatory and Financial Mechanism	A4-1: Preparation of Rules and Regulations under SWM Act	SWM Act, WM M/P & A/P and By-Law on SWM are authorised and enacted	MHLG, EPU	580,000	■	.....	.....	.....	
		A4-2: Authorisation and Implementation of Waste Minimisation Master Plan		MHLG, EPU		■	.....	.....	.....	
		A4-3: Amendment of By-Law on SWM		MHLG, LAs		■	.....	.....	.....	
		A4-4: Financial Support to LAs for Formulation and Implementation of LAP-WM		MHLG, EPU		■	.....	.....	.....	
	Action-5: Improvement of Information Management	A5-1: Establishment of Information Management System	All LAs participate in IMS	MHLG, LAs, Concessionaires	2,495,000	■	.....	.....	.....	
		A5-2: Implementation and Monitoring of IMS	WMU is established in all LAs	MHLG, LAs, Concessionaires		■	.....	.....	.....	
	Action-6: Provision of Guidance to LAs on LAP-WM	A6-1: Formulation of National Annual Plan for LAPs on Waste Minimisation	All LAs formulate and implement LAP on waste minimisation	MHLG	22,955,000	■	○	.....	.....	
		A6-2: Dissemination of the Guidelines for Local Action Plan on Waste Minimisation		MHLG		■	.....	.....	.....	
		A6-3: Establishment of Waste Minimisation Unit in LAs		MHLG, LAs		■	.....	.....	.....	
		A6-4: Formulation, Implementation and Monitoring of LAP		MHLG		■	.....	.....	.....	

Note \*1 & \*2: The M/P provides broad strategies to realise the vision of *Material Cycle Society* by the year 2020, whilst the A/P provides detailed activities targeted up to the year 2010.

Note \*3: Action Plan costs are basically operating costs, estimated over the 5-year period. Costs include both operating costs to be directly borne by the Federal Government and costs (such as actual collection of separated items, etc.) which should be borne by LAs or Concessionaires, but may be subsidised in part by the Federal Government. Total cost is estimated at RM 171,370,000.





## **5.2 Federal Action Plan**

This section describes in detail the objectives, implementation schedule and responsible players/agencies and their roles in undertaking the following actions:

- Action 1: Enhancement of Awareness Raising Activities under the National Recycling Programme (NRP)
- Action 2: 3Rs Activities in Schools
- Action 3: Formulation of Stakeholders' Networking and Development of Partnership Activities on 3Rs
- Action 4: Strengthening of Legal, Regulatory and Financial Mechanism
- Action 5: Improvement of Information Management
- Action 6: Provision of Guidance to LAs on LAP-WM

- (2) Implementation of campaign on TV/radio, newspaper articles/advertisement and web-site
- (3) Implementation of source separation (SS) by the general public (See A3-3)

**A1-3: Development and Training of Leaders for Promotion of 3Rs**

Programmes to develop and train leaders for promotion of 3Rs, focusing to community leaders/ local champions, business/ industrial associations etc., should be formulated and implemented by MHLG and/or LAs.

Meanwhile, the exchange of information and experiences on 3Rs amongst community leaders is best carried out periodically through seminars and/or workshops.

Activities include the following:

- (1) Formulation and implementation of development/training programmes for leaders
- (2) Conducting of seminars/ workshops to exchange information and experiences

**A1-4: Promotion of Green Purchasing and Waste Reduction at Source**

Periodical campaigns for the promotion of “*Recycled/ Eco-products*” and “*Green Purchase*” should be organised and implemented by using the mass media in line with the NRP. Exhibition and awarding ceremony of recycled/ eco-products should be conducted on special occasions like the National Recycling Day.

Campaigns for waste reduction at source; i.e. carrying own bag during shopping by general public, simplified packaging by manufactures, etc. should be organised and implemented periodically.

Activities include the following:

- (1) Promotion of campaigns on green purchasing and waste reduction at source by the mass media
- (2) Holding exhibition and award ceremony on the National Recycling Day (NRD)

Implementation Steps and Schedule

Implementation procedure and schedule are shown in Table 5.2.1.

Responsible Players/Agencies and their Roles

Players/ Agencies	Major Roles
MHLG */ **	<ul style="list-style-type: none"> <li>•Preparation/ implementation of nation-wide awareness campaign on source separation</li> <li>•Preparation/ implementation of periodical campaign on eco-products and green purchasing</li> <li>•Re-organisation of the programme of the national recycling day</li> <li>•Re-launching of NRP</li> </ul>
MITI	<ul style="list-style-type: none"> <li>•Promotion of recycled/ eco-products</li> <li>•Participation in the NRD</li> </ul>
State Government	<ul style="list-style-type: none"> <li>•Provision of information necessary for the campaign, event and website</li> <li>•Participation in the campaign and event</li> </ul>
Local Authorities	<ul style="list-style-type: none"> <li>•Provision of information necessary for the campaign, event and website</li> <li>•Participation in the campaign and event</li> </ul>

Concessionaires	<ul style="list-style-type: none"> <li>• Provision of information necessary for the campaign, event and website</li> <li>• Participation in the campaign and event</li> </ul>
Business/ industrial associations, Private Companies	<ul style="list-style-type: none"> <li>• Dissemination of information necessary for the campaign, event and website</li> <li>• Participation in the campaign and event</li> </ul>
Communities	<ul style="list-style-type: none"> <li>• Dissemination of information necessary for the campaign, event and website</li> <li>• Participation in the campaign and event</li> </ul>
NGOs/ CBOs	<ul style="list-style-type: none"> <li>• Dissemination of information necessary for the campaign, event and website</li> <li>• Participation in the campaign and event</li> </ul>

Notes;     \*: Major implementation body of this Action.  
               \*\*: Major monitoring body of this Action.

Table 5.2.1 Implementation Steps and Schedule of Action-1

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A1-1: Improvement of the National Recycling Programme (NRP)</b>								
(1) to examine past activities of the NRP	MHLG	LAs, Concessionaires	---	█				
(2) to strengthen materials, media tools and campaigns	MHLG	States, LAs	MHLG	█	.....	.....	.....	.....
(3) to re-organise the NRP	MHLG	States, LAs, Concessionaires	---	█	█	○	○	○
<b>A1-2: Implementation of Nation-wide Awareness Campaign on Source Separation</b>								
(1) to formulate nation-wide awareness plan on source separation with partners	MHLG	States, LAs, Concessionaires	---	█				
(2) to implement campaign on the TV/radio, newspaper and web-site	MHLG	Private sector	MHLG	█	.....	.....	.....	.....
(3) to implement the source separation by general public (See A3-3)	General public	MHLG, LAs, Concessionaires	MHLG	█	█	○	○	○
<b>A1-3: Development/ Training of Leaders for Promotion of 3Rs</b>								
(1) to formulate and implement the development/ training programme of leaders	MHLG, LAs	LAs. associations	MHLG	○		○	○	○
(2) to conduct seminars/ workshops to exchange information and experiences	MHLG, LAs	LAs. associations	MHLG	○		○	○	○
<b>A1-4: Promotion of Green Purchasing and Waste Reduction at Source</b>								
(1) to promote campaign on green purchasing and waste reduction at source	MHLG	MITI	MHLG	█	.....	.....	.....	.....
(2) to hold exhibition and award ceremony	MHLG	MITI	MHLG	○		○	○	○

## **ACTION 2: 3Rs ACTIVITIES IN SCHOOLS**

### Background

The philosophy of conservation of resources through sustainable waste minimisation practices and habits should be inculcated into the younger generation via their education in the schools and in their co-curricular activities. By doing so, it is hoped that the younger generation would grow up to be citizens who practise waste minimisation as part of daily life and indirectly “educate” their parents and siblings as well.

### Objective

To enhance awareness on 3Rs amongst school children and teachers through 3Rs activities in schools

### Description of Activities

#### **A2-1: Dissemination of the “Guidelines for the Enhancement of 3Rs Activities in Schools”**

The “Guideline for the Enhancement of 3Rs Activities in Schools” should be disseminated nation-wide by both the Ministry of Housing and Local Government (MHLG) and the Ministry of Education (MOE), by publishing and distributing the guidelines and by implementing nation-wide seminars and/or workshops. It is also recommended the Guidelines be updated periodically to take onboard current trends and approaches on the 3Rs.

Activities include the following:

- (1) Publication and distribution of the guidelines to related authorities, agencies, and schools
- (2) Implementation of nation-wide seminars and/or workshops to explain the guidelines

#### **A2-2: Formulation of Award Programme for 3Rs Activities in Schools**

The Award Programme for 3Rs activities in schools should be organised and implemented at the LAs and/or State level. Before the awarding programme can be introduced to participating schools, it is important that a partnership between the Federal and local agencies be formulated – in this instance, between MHLG and MOE at the Federal level and related stakeholders at the local level.

Activities include the following:

- (1) Preparation of the award programme, such as selection criteria, participation, procedures
- (2) Formulation of partnership among participating institutions such as MHLG, MOE, States and LAs
- (3) Implementation of the award programme for school 3Rs activities

#### **A2-3: Implementation and Monitoring of 3Rs activities in Schools**

The 3Rs activities carried out by the individual school should be decided by the school in line with the guidelines. Activities may include source separation of recyclables, poster competition, collection of recyclables, and composting, etc. Should source separation and/or collection of recyclables be selected as an activity, networking among players, i.e. school, collector/ recycler, concessionaire and end-user, should be established with the leadership of the LA and/or State

government. The LA and/or State government should monitor the 3Rs activities of schools.

Details of formulation, implementation and monitoring of 3Rs activities in schools are discussed in greater depth in *Part I "Guidelines for Enhancement of 3Rs Activities in Schools"*, in Volume II of this report.

Activities include the following:

- (1) Selection of schools willing to participate in the award programme
- (2) Training of school teachers through workshops and/or seminars
- (3) Preparation and implementation of 3Rs activities by each school in line with the guidelines
- (4) Evaluation of 3Rs activities at each school
- (5) Holding an award ceremony

Target Local Authorities and State Governments

It is recommended that the 3Rs award programme at the LA and State level be implemented in the following 10 LAs and 4 States by the year 2010. Other states and LAs who express interest may be included, where possible.

LAs level	States/ FT level
MPPP(Penang) MPSJ (Subang Jaya) MPPJ (Petaling Jaya) MPK Kuantan, MDKerian MBMB (Marakka MBJB (Johor Bahru) MP Langkawi MB Miri, MBKS (Kuching Selatan) <Total: 10 LAs>	DBKL Penang Johor Sarawak <Total: 4 States/ FT>

**Table 5.2.2 Proposed Schedule for 3Rs Activities in Schools**

Item	2005	2006	2007	2008	2009	2010
School 3Rs at the LA level				<b>Continue</b>		
MBJB, MBMiri						→
MPSJ, MPPP, MPPJ, MPK, MBKS						→
MDK, MBMB, MP Langkawi						→
School 3Rs at the State level						
Johor						→
DBKL						→
Penang						→
Sarawak						

### Implementation Steps and Schedule

Implementation steps and schedule are shown in Table 5.2.3.

### Responsible Players/Agencies and their Roles

Players/ Agencies	Major Roles
Pupils *	Implementation of the 3Rs activities
Teachers *	Guide pupils to implement 3Rs activities
School Principal	Decide to implement 3Rs activities
PTAs	1) Solicit funds and sponsors 2) Take part and support the 3Rs activities
Communities	1) Solicit funds and sponsors 2) Take part and support the 3Rs activities
Concessionaires	1) Provide collection services and infrastructures, e.g. bins 2) Provide awareness explanations and demonstrations
NGOs/ CBOs	1) Provide awareness explanation and demonstrations
Private Companies	1) Arrange site visits to waste facilities 2) Provide awareness explanations 3) Provide collection services and infrastructures e.g. bins 4) Fund and sponsor the activities
District Education Officer	1) Formulate 3Rs award programme with LAs (LA level programme) 2) Implement and evaluate 3Rs activities
Local Authorities */**	1) Formulate 3Rs award programme with DEO (LA level programme) 2) Implement and evaluate 3Rs activities
State Education Department	1) Formulate 3Rs award programme with LAs (State level programme) 2) Implement and evaluate 3Rs activities
State Government */**	1) Formulate 3Rs award programme with LAs (State level programme) 2) Implement and evaluate 3Rs activities
MOE **	1) Issue Guidelines to schools and update as appropriate 2) Organise LA and/or State level 3Rs award programme 3) Provide education programme 4) Provide training courses for teachers
MHLG **	1) Disseminate the “Guidelines for Enhancement of 3Rs Activities in Schools” 2) Organise LA and/or State level 3Rs award programme 3) Provide awareness explanations and demonstrations 4) Allocate funds for 3Rs programme/ infrastructures 5) Provide guidelines to schools and update as appropriate 6) Provide 3Rs education materials and related data 7) Support 3Rs initiatives for schools by other partners e.g. concessionaires, NGOs/CBOs

Notes; \*: Major implementation body of this Action.  
\*\*: Major monitoring body of this Action.



**Table 5.2.3 Implementation Steps and Schedule of Action-2**

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A2-1: Dissemination of the "Guidelines for the Enhancement of 3Rs Activities in Schools"</b>								
(1) to publish and distribute the guidelines to related authorities, agencies, and schools	MHLG, MOE	States, LAs, Concessionaires	MHLG	■				
(2) to implement seminars and/or workshops to explain the guidelines	MHLG, MOE	States, LAs, Concessionaires	MHLG	○	○			
<b>A2-2: Formulation of Award Programme for 3Rs Activities in Schools</b>								
(1) to prepare award programme	MHLG, MOE	States, LAs, Concessionaires	MHLG	■				
(2) to formulate partnership among participating institutions	MHLG, MOE	States, LAs	MHLG	■	.....	.....	.....	.....
(3) to implement the award programme for school 3Rs activities	LAs, States	Concessionaires, NGOs/ CBOs	MHLG, MOE	■	.....	.....	.....	.....
<b>A2-3: Implementation and Monitoring of 3Rs Activities in Schools</b>								
(1) to select schools willing to participate in the award programme	LAs, States	Concessionaires	MHLG, MOE	■	.....	.....	.....	.....
(2) to train school teachers	MHLG, MOE	States, LAs, Concessionaires	MHLG	■	.....	.....	.....	.....
(3) to prepare and implement 3Rs activities by each school	Pupils, Teachers	States, LAs, Concessionaires	MHLG, MOE	■	■	.....	.....	.....
(4) to evaluate 3Rs activities at each school	LAs, States	NGOs/ CBOs	MHLG, MOE	■	■	.....	.....	.....
(5) to hold award ceremony	LAs, States	MHLG, MOE, Concessionaires	MHLG, MOE		○	○	○	○

Local Authorities	<ul style="list-style-type: none"><li>▪ Preparation of amendment by-law for waste minimisation</li><li>▪ Enactment of the by-law</li></ul>
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Notes;   \*: Major implementation body of this Action.  
          \*\*: Major monitoring body of this Action.

### **ACTION 3: FORMULATION OF STAKEHOLDERS NETWORKING AND DEVELOPMENT OF PARTNERSHIP ACTIVITIES OF 3RS**

#### Background

Under the National Recycling Programme, all participating LAs are requested by MHLG to set up and develop their individual recycling (3Rs) programme to promote and enhance the recycling activities within the boundaries of the LA. As many stakeholders are involved in waste minimisation activities, these activities do not work without collaboration and role-sharing among stakeholders. Therefore, stakeholder partnership through its networks should be established. Preferably, the LA should lead the partnership and networking so that the LA's effort to spearhead waste minimisation activities within its local authority area could be better coordinated and effective.

Meanwhile, source separation leads first to the reduction of disposed waste amount at landfill sites, and secondly, to the smooth introduction of 3Rs activities. The introduction of source separation of municipal solid waste (MSW) is the main activity of waste minimisation. Such activities have been previously introduced on a trial basis in several LAs. However, in order to enhance such an activity and to achieve the target of waste minimisation, a suitable and comprehensive waste minimisation management system should be implemented to include source separation, collection of separated recyclables and delivery of the recyclables to the intended processors/ recyclers.

#### Objective

To build partnership within and among stakeholders on 3Rs activities through networking on individual activity

#### Description of Activities

##### **A3-1: Formulation of National Annual Plan for the Establishment of Stakeholders Networking and Implementation of Source Separation**

The National Annual Plan for the formulation of stakeholders networking and implementation of source separation should be prepared by MHLG. This is necessary in order to identify the respective LAs and/or States earmarked to introduce these programmes by the year 2010. The LAs and/or States earmarked to participate in the National Annual Plan are listed in Table 5.2.4.

Prior to the implementation of the programme, MHLG should organise a seminar and workshop to guide LAs on the setting up of networking and implementation of source separation.

Activities include the following:

- (1) Preparation of the National Annual Plan for stakeholders' networking and source separation
- (2) Implementation of nation-wide seminars and workshops to guide networking and source separation

##### **A3-2: Formulation of Stakeholders Networking**

As the first step, a stakeholders' directory should be prepared by the LAs to identify the recycling players in and surrounding the LAs territory. Using the directory as a reference, stakeholders networking can be established in accordance with the process and procedures outlined in the "Recycling Wheel", a booklet written by MPPP in 2001 and used to establish and operate its ongoing recycling programmes. Collection of recyclables and their recovery are

presently carried out by the participating agencies of the Recycling Wheel as partnership activities on recycling with waste generators. Outline of the “Recycling Wheel” is shown in *Article 3.2.2, Part 3, Supporting Report-1*.

Activities include the following:

- (1) Establishing stakeholders’ directory and identifying key leaders and leading organisations
- (2) Holding a forum by LAs to discuss possible actions with key leaders and leading organisations
- (3) Building partnership among public sector by setting inter-ministerial /agency partnership and inter-local council for WM
- (4) Building partnership among stakeholders by pilot activities described below
- (5) Organising seminar/workshop to guide LAs on how to formulate the networking and how to implement the source separation

### **A3-3: Implementation of Pilot 3Rs Activities**

Implementation plans for 3Rs activities should be prepared by LAs in line with the “*Guidelines for Source Separation of MSW*” (refer to *Part III, Volume II*). Target groups should be households, institutions and business entities. Partnership among various stakeholders; i.e. residents/ communities/ institutions/ business entities, recyclers/ concessionaire and end-users should be established beforehand based on the stakeholders networking. The introduction of 3Rs activities within a community is preferably conducted as pilot activities in order to form partnership with performance measurement. These activities can be subsequently expanded based on the review of activities. As a start, Federal financial support for these activities though the LAs is critical.

Types of activities include the following:

- (1) Pilot recycling programme jointly undertaken by residential associations/NGOs, recyclers or concessionaires with financial support from LAs. In order for the pilot project to take off, the LAs need to ensure that the following are put in place:
  - LA has to identify core organisations to arrange the activities.
  - LA has to educate residents on the separation of waste, storage waste and where to bring separated waste, in particular, centres operated by residential associations/NGOs
  - LA has to locate collectors of separated waste, for example, collection by residential associations/NGOs or LA
  - LA has to monitor separation efforts of residents and the transfer of waste by residential associations/NGOs
  - LA has to arrange to install bins and collection its contractors, concessionaires or recycling collectors
  - After activities have kicked-off, LA has to arrange partnership among parties concerned.
- (2) Pilot waste reduction programme by residential associations, NGOs and shops (shopping mall) with financial support from LAs.
  - LA has to identify core organisations to arrange the activities.
  - LA has to educate residents on what to buy, how to use longer time and how to reduce waste by residential associations/NGOs
  - LA has to arrange promotional events with shops (shopping mall)

### A3-4: Development of Partnership Activities on 3Rs of NGOs/ CBOs

Partnership activities on 3Rs carried out by NGOs/ CBOs, in other words “grass-root 3Rs activities”, such as the operation of buy-back centre, drop-off centre, recycle shop, flea market, charity bazaar, etc. should be promoted by strengthening partnership amongst NGOs/CBOs and the general public, recycling players and LAs. MHLG and LAs should promote these partnerships through the establishment of stakeholders networking and organisation of workshops on 3Rs amongst key-players and/or organisations etc.

Generally, NGOs/ CBOs have the ability to bridge the gap between the public sector and waste generators. As such, it is essential to include NGOs/CBOs as part of the partnership.

Activities include the following:

- (1) Formulation of supporting plan of 3Rs activities of NGOs/ CBOs in line with NRP
- (2) Conducting workshop to strengthening partnership amongst NGOs/CBOs and other stakeholders
- (3) Development of buy-back centres and drop-off centres in partnership with NGOs/ CBOs
- (4) Development of recycling shops and facilities in partnership with 3Rs related players
- (5) Organisation of flea markets and charity bazaars in partnership with 3Rs related players

#### Target Local Authorities and State Governments

This programme is to be introduced to the following nine (9) LAs and two (2) States by the year 2010. Other states and LAs who express interest to participate may be included, where possible.

LAs level	States/ FT level
MPPP(Penang)	Penang
MPSJ (Subang Jaya)	DBKL
MB Miri	<Total: 2 States/ FT>
Putrajaya	
MPPJ (Petaling Jaya)	
MDKS (Kinta Selatan)	
MBMB (Marakka)	
MBJB (Johor Bahru)	
MBKS (Kuching Selatan)	
<Total: 9 LAs>	

**Table 5.2.4 Proposed National Annual Plan for Action-3**

Target LAs/ States	2005	2006	2007	2008	2009	2010
<LAs level>					<b>Continue</b>	
MPPP, MPSJ, MB Miri					→	→
Putrajaya, MPPJ					→	→
MDKS, MBMB, MBJB, MBKS						
Some other LAs						
<State level>						
Penang state, DBKL						

### Implementation Steps and Schedule

Implementation steps and schedule is shown in Table 5.2.5.

### Responsible Players/Agencies and their Roles

Players/Agencies	Roles
MHLG **	<ul style="list-style-type: none"> <li>▪ Formulate national annual plan for the formulation of stakeholders networking and implementation of source separation</li> <li>▪ Provide guidance for the formulation of networking and source separation to LAs</li> <li>▪ Coordinate partnership activities on 3Rs among stakeholders</li> <li>▪ Provide recycle centres in the LAs</li> </ul>
State Government	<ul style="list-style-type: none"> <li>▪ Coordinate partnership activities on 3Rs among stakeholders</li> <li>▪ Prepare the implementation plan for source separation (State level)</li> </ul>
Local Authorities *	<ul style="list-style-type: none"> <li>▪ Formulation of stakeholders networking and directory</li> <li>▪ Coordinate the establishment of networking</li> <li>▪ Prepare the implementation plan for source separation (LA level)</li> <li>▪ Provide guidance for source separation</li> <li>▪ Coordinate partnership and activities among stakeholders</li> <li>▪ Provide awareness explanation and demonstrations</li> <li>▪ Organise award programme</li> <li>▪ Carry-out periodical monitoring</li> <li>▪ Assist partnership activities on 3Rs of NGOs/ CBOs</li> <li>▪ Coordinate the operation of recycle centres</li> </ul>
Concessionaires	<ul style="list-style-type: none"> <li>▪ Participate in the networking</li> <li>▪ Collect recyclables</li> <li>▪ Provide awareness explanations and demonstration</li> <li>▪ Operation of recycle centres</li> </ul>
Business entities	<ul style="list-style-type: none"> <li>▪ Participate in the networking</li> <li>▪ Carry-out source separation</li> <li>▪ Participate in flea markets and charity bazaars</li> </ul>
Recyclers	<ul style="list-style-type: none"> <li>▪ Participate in networking</li> <li>▪ Collect recyclables</li> <li>▪ Provide review on conduct of source separation</li> </ul>
NGOs/CBOs	<ul style="list-style-type: none"> <li>▪ Participate in the networking</li> <li>▪ Participate, coordinate and lead source separation efforts</li> <li>▪ Provide awareness explanations and demonstration</li> <li>▪ Carry out partnership activities on 3Rs incl. operation of recycle centres</li> <li>▪ Organise and participate in flea markets and charity bazaars</li> </ul>
Residents/ General Public*	<ul style="list-style-type: none"> <li>▪ Carry-out source separation</li> <li>▪ Segregate the waste and bring reusable and recyclable items to the recycle centres</li> <li>▪ Participate in partnership activities on 3Rs</li> <li>▪ Participate in flea markets and charity bazaars</li> </ul>

Notes;   \*: Major implementation body of this Action.  
          \*\*: Major monitoring body of this Action.

**Table 5.2.5 Implementation Steps and Schedule of Action-3**

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A3-1: Formulation of National Annual Plan for Stakeholders Networking and Source Separation</b>								
(1) to prepare the National Annual Plan for Stakeholders Networking and Source Separation	MHLG	LAs	MHLG	■				
(2) to implement nation-wide seminars and workshops	MHLG	LAs, MPPP	---	○	○	○	○	○
<b>A3-2: Formulation of Stakeholders Networking</b>								
(1) to establish stakeholders' directory and identify key leaders and leading organisations	LAs		---	■	■	■	■	■
(2) to hold a forum by LAs	LAs	MHLG	MHLG, LAs	■	■	■	■	■
(3) to build partnership among public sector	LAs	MHLG	LAs	■	■	■	■	■
(4) to build partnership among stakeholders	Private sectors	LAs, States, MHLG	LAs, MHLG	■	■	■	■	■
(5) to organise seminar/workshop to guide LAs	LAs	MHLG	LAs, MHLG	○	○	○	○	○
<b>A3-3: Implementation of Pilot 3Rs Activities</b>								
(1) to carry out pilot recycling programme jointly by residential associations/ NGOs, recyclers or concessionaires	LAs	NGOs/CBOs, Concessionaires, recyclers	LAs	■	■	■	■	■
(2) to carry out pilot reduction programme by residential associations, NGOs and shops	NGOs/CBOs, Shops	LAs, Concessionaire	LAs	■	■	■	■	■

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A3-4: Development of Partnership Activities on 3Rs of NGOs/ CBOs</b>								
(1) to formulate supporting plan of 3Rs activities of NGOs/ CBOs in line with NRP	MHLG	LAs	MHLG					
(2) to conduct workshop to strengthening partnership amongst NGOs/CBOs and other stakeholders	MHLG	LAs	MHLG	○	○	○	○	○
(3) to develop more buy-back centres and drop-off centres in partnership with NGOs/ CBOs	MHLG, LAs	NGOs/CBOs, Concessionaires	MHLG					
(4) to develop recycle shops and facilities in partnership with 3Rs related players	NGOs/CBOs, Private sectors	LAs	LAs					
(5) to organise flea markets and charity bazaars in partnership with 3Rs related players	NGOs/CBOs, Private sectors	LAs	LAs					



## **ACTION 4: STRENGTHENING OF LEGAL, REGULATORY AND FINANCIAL MECHANISM**

### Background

Although the awareness raising of the stakeholders and their strengthened partnership are the prerequisites for realising a “*Material Cycle Society*”, they do not constitute sufficient conditions for establishing the needed socio-economic system. The mind-set of the stakeholders and partnership with them need to be supported by establishment of the legal/regulatory, incentive, and institutional mechanisms. In this respect, the actions on establishment of basic framework for laws/regulations, institutional and financial mechanisms are explained in the WM-M/P.

### Objective

To enact basic solid waste management law, WM-M/P and A/P and By-Laws for the promotion of waste minimisation.

### Description of Activities

#### **A4-1: Preparation of Rules and Regulations under SWM Act**

The Solid Waste Management Act (SWM Act) is under preparation, and the rules and regulations of the Act should be provided after enactment of Act.

Main items that are covered in the SWM Act and the rules and regulations under SWM Act are attached as Appendix for Action - 4.

#### **A4-2: Authorisation and Implementation of Waste Minimization Master Plan**

The government in due course may adopt the “WM-M/P and A/P” and its implementation may start immediately thereafter. Initiation of the plan could start with the official launching of 3Rs (Reduce, Reuse and Recycle) in line with the WM-M/P.

Activities include the following:

- (1) Carrying out necessary procedures to authorise the WM-M/P and A/P and enact it
- (2) Establishing the Inter-Ministerial Committee for the implementation of M/P and A/P
- (3) Announcing the official launching of 3Rs (Reduce, Reuse and Recycle)
- (4) Implementing the Waste Minimisation Action Plan

#### **A4-3: Amendment of By-Law on Solid Waste Management**

In line with the SWM Act and WM-M/P, current By-Laws for solid waste management at the local level should be amended by MHLG. The amended By-Laws on SWM would comprise the following items.

- Adoption of the hierarchy of waste options; i.e. 1<sup>st</sup> Reduction, 2<sup>nd</sup> Reuse, 3<sup>rd</sup> Recovery, 4<sup>th</sup> Treatment and 5<sup>th</sup> Disposal (by NSP).
- Preparation and implementation of the Local Action Plan on waste minimisation
- Proper management of waste at generation sources
- Proper collection of solid waste including registration/license for waste collectors

- Proper disposal of solid waste
- Proper recycling of solid waste
- On-site inspection by authorities
- Penal provisions

Activities include the following:

- (1) Formulating the model By-Law on SWM in line with the SWM Act and WM-M/P
- (2) Modifying and enacting the By-Law on SWM by each LAs based on the model By-Law

#### **A4-4: Financial Support to LAs for Formulation and Implementation of LAP-WM**

To integrate the current financial support to LAs under NRP into the local action plans (LAP-WM) to be formulated and implemented by LAs, MHLG shall provide financial support to LAs.

MHLG has clarified the criteria for eligibility of grant for NRP. This eligibility may include formulation of local action plan, reporting of waste minimisation activities from LAs to MHLG, arrangement of 3R activities planned including measurement. MHLG may make expand the grant in future.

Activities include the following:

- (1) Financing the LAs for the formation of LAP-WM.
- (2) Setting the criteria for financing 3Rs programme under LAP-WM
- (3) Financing the LAs for implementation of 3Rs programme under LAP-WM

#### Implementation Steps and Schedule

Implementation steps and schedule are shown in Table 5.2.6.

#### Responsible Players/Agencies and their Roles

Players/Agencies	Roles
EPU, Prime Minister Department *	<ul style="list-style-type: none"> <li>▪ Organisation of Ministerial Committee</li> <li>▪ Authorisation of SWMA and WMMP</li> </ul>
MHLG */ **	<ul style="list-style-type: none"> <li>▪ Preparation of “Solid Waste Management Bill”</li> <li>▪ Participation in the Ministerial Committee</li> <li>▪ Adoption of Waste Minimisation Master Plan</li> <li>▪ Preparation of amendment model by-law for Local Authorities</li> </ul>
Ministry of International Trade and Industries	<ul style="list-style-type: none"> <li>▪ Participation in the Ministerial Committee</li> </ul>
Ministry of Education	<ul style="list-style-type: none"> <li>▪ Participation in the Ministerial Committee</li> </ul>
Ministry of Public Works	<ul style="list-style-type: none"> <li>▪ Participation in the Ministerial Committee</li> </ul>
Ministry of Natural Resources and Environment	<ul style="list-style-type: none"> <li>▪ Participation in the Ministerial Committee</li> </ul>
State government	<ul style="list-style-type: none"> <li>▪ Preparation of amendment by-law for waste minimisation</li> <li>▪ Support for enactment of the by-law</li> </ul>

**Table 5.2.6 Implementation Steps and Schedule of Action-4**

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A4-1: Preparation of Rules and regulations under SWM Act</b>								
(1) to prepare rules and regulations in line with SWM Act	MHLG	EPU	---					
<b>A4-2: Authorisation and Implementation of Waste Minimisation Master Plan (WM-M/P)</b>								
(1) to carry out necessary procedures to authorise the Waste Minimisation M/P and A/P and enact it	MHLG	EPU	MHLG					
(2) to establish the Inter-Ministerial Committee for the implementation of M/P and A/P	EPU, MHLG	MITI, MOE, MPW, MNRE	---					
(3) to announce the official launching of 3Rs (Reduce, Reuse and Recycle)	MHLG	EPU, States, LAs	---					
(4) to implement the Waste Minimisation Action Plan	MHLG	LAs, States, Private sectors	MHLG					
<b>A4-3: Amendment of By-Law on Solid Waste Management</b>								
(1) to formulate model By-Law on SWM in line with the SWM Act and WM-M/P	MHLG	LAs	MHLG					
(2) to modify and enact the By-Law on SWM by each local authorities based on the model By-Law	LAs	MHLG	MHLG					
<b>A4-4: Financial Support to LAs for Formulation and Implementation of LAP-WM</b>								
(3) to finance LAs for the formation of LAP-WM.	MHLG	EPU, MOF	---					
(4) to set the criteria for financing 3Rs programme under LAP-WM	MHLG	---	---					
(5) to finance to LAs for implementation of 3Rs programme under LAP-WM	MHLG	EPU, MOF	---					

## **ACTION 5: IMPROVEMENT OF INFORMATION MANAGEMENT**

### Background

The Federal Government would be the focal point of all information and data on 3Rs so that it could always identify the current status of waste management and recycling of municipal solid waste in the country. MHLG currently has established the “Recycling Information Centre” within the Ministry. This Centre is responsible for information management of 3R activities.

### Objective

To establish a focal point of all information, data and knowledge on 3Rs so that it can be more useful to all the stakeholders.

### Description of Activities

#### **A5-1: Establishment of Information Management System (IMS)**

An Information Management System (IMS) comprising a database of solid waste flow including recyclables should be created on a nation-wide basis. MHLG should disseminate IMS to all LAs and related stakeholders. The “Recycling Information Centre (RIC)” in MHLG shall be the focal point to manage IMS.

In addition, stakeholders’ networking database (SND) should be updated from time to time by MHLG in order to disclose current information to the public and to accelerate recycling activities by both public and private initiatives.

Activities include the following:

- (1) Disseminating Information Management System (IMS) nation-wide
- (2) Conducting seminars and workshops to explain the IMS
- (3) Updating stakeholders networking database at the Federal level
- (4) Operating the Recycling Information Centre (RIC) as a focal point to manage IMS

#### **A5-2: Implementation and Monitoring of IMS**

IMS should be implemented through the joint effort of MHLG and LAs and supported by other players such as concessionaires, NGOs/CBOs, recyclers, and end-users. LAs should collect the quantitative information and data on waste flow and fill in the forms provided by MHLG and convey to MHLG. MHLG should compile and analyse the data and prepare the database and annual report. Management and monitoring of IMS should be carried out by MHLG.

In addition, MHLG should disseminate information of 3Rs activities via website, e-mail news and media.

The Waste Minimisation Unit (explained in Action 6) in the LAs will handle information such as data collection, survey and reporting.

Outline of IMS is shown in *Article 3.2.3, Part 3, Supporting Report-1*, and details are described in *Chapter 6, Volume III Pilot Projects*. The data to be collected by IMS and their sources are shown in attached Appendix for Action - 5.

Activities include the following:

- (1) Collecting and processing the information of waste flow by LAs and report to MHLG
- (2) Formulating database/annual report based on the information and data submitted from LAs
- (3) Compiling the research and development information (R&D information)
- (4) Disseminating information of 3Rs activities via website, e-mail news and media.

Implementation Steps and Schedule

Implementation steps and schedule is shown in Table 5.2.7.

Responsible Players/Agencies and their Roles

Players/Agencies	Roles
MHLG */ **	<ul style="list-style-type: none"> <li>▪ Preparation and management of the system</li> <li>▪ Operating body of the Information Management System</li> <li>▪ Legal and financial assistance for establishment of RIC</li> <li>▪ Operating body of the website and E-mail News services</li> <li>▪ Publication</li> </ul>
State Government	<ul style="list-style-type: none"> <li>▪ Assistance for establishment of WMU in LAs</li> </ul>
Local Authorities *	<ul style="list-style-type: none"> <li>▪ Collection and Provision of data and information in the LA</li> <li>▪ Establishment of WMU</li> <li>▪ Utilisation of the data and information and reporting to MHLG</li> </ul>
Concessionaires	<ul style="list-style-type: none"> <li>▪ Collection and Provision of data and information in their concession area</li> <li>▪ Utilisation of the data and information</li> </ul>
Universities/Research Institute	<ul style="list-style-type: none"> <li>▪ Collection and Provision of data and information in their organisation</li> <li>▪ Utilisation of the data and information</li> <li>▪ Provision of opinions and suggestions to the other R&amp;D activities</li> </ul>
Business Entities	<ul style="list-style-type: none"> <li>▪ Collection and Providing data and information in their organisation</li> <li>▪ Utilisation of the data and information</li> <li>▪ Provision of opinions and suggestions to the other R&amp;D and other activities</li> </ul>
NGOs/CBOs	<ul style="list-style-type: none"> <li>▪ Collection and Providing data and information in their organisation</li> <li>▪ Utilisation of the data and information</li> <li>▪ Provision of opinions, suggestions to the other R&amp;D and other activities</li> </ul>
General Public	<ul style="list-style-type: none"> <li>▪ Cooperation with waste flow survey</li> </ul>

Notes;     \*: Major implementation body of this Action.  
              \*\*: Major monitoring body of this Action.

**Table 5.2.7 Implementation Steps and Schedule of Action-5**

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule				
				2006	2007	2008	2009	2010
<b>A5-1: Establishment of Information Management System (IMS)</b>								
(1) to disseminate Information Management System (IMS) nation-wide	MHLG	LAs, Concessionaires	MHLG	■	●	●	●	●
(2) to conduct seminars and workshops to explain the IMS	MHLG	LAs	---	○	○	○	○	○
(3) to update stakeholders networking database at the Federal level	MHLG	LAs, Concessionaires	MHLG	■	●	●	●	●
(4) to operate Recycling Information Centre (RIC) as a focal point to manage IMS	MHLG	Private sectors	---	■	■	■	■	■
<b>A5-2: Implementation and Monitoring of IMS</b>								
(1) to collect and process the information of waste flow by LAs and report to MHLG	LAs	Concessionaires, Private sectors	MHLG	■	■	■	■	■
(2) to formulate database/ annual report based on the information and data submitted from LAs	MHLG	LAs, Concessionaires	---	■	■	■	■	■
(3) to compile the research and development information (R and D information)	MHLG	Universities, etc.	---	■	■	■	■	■
(4) to disseminate information of 3Rs activities via website, e-mail news and media.	MHLG	Private sectors	---	■	■	■	■	■

## **ACTION 6: PROVISION OF GUIDANCE TO LOCAL AUTHORITIES ON LAP**

### Background

Each LA plays an important role in promoting recycling and waste minimisation among the communities within its boundaries. The LA should lead, monitor and work together with various local stakeholders on recycling to ensure successful and sustainable recycling programmes. MHLG will guide the LAs on the proper direction, in terms of preparation and implementation of Local Action Plan on Waste Minimisation.

### Objective

To guide the Local Authorities to formulate and implement individual Action Plans for waste minimisation based on the WM-M/P with the aim of establishing an environmentally sustainable society.

### Description of Activities

#### **A6-1: Formulation of National Annual Plan for LAPs on Waste Minimisation**

The National Annual Plan for formulation and implementation of LAPs-WM should be prepared by MHLG and disseminated to all States and LAs. The proposed National Annual Plan is as shown in Article A6-3. Technical and financial assistance mechanism for preparation and implementation of LAPs-WM should be formulated by MHLG.

The National Kick-off Conference on LAPs-WM should be organised inviting all LAs and States.

Activities include the following:

- (1) Formulating the National Annual Plan for LAP on waste minimisation
- (2) Formulating the technical and financial assistance mechanism for LAP
- (3) Holding the National Kick-off Conference on LAP inviting all States and LAs

#### **A6-2: Dissemination of the Guidelines for Local Action Plan on Waste Minimisation (LAP-WM)**

MHLG and model LAs (MPPP, MPSJ, MDKS and MB Miri), so called “Core Team”, should disseminate experiences/ information for the preparation and implementation of LAP-WM, operation of Information Management System (IMS), source separation practices etc. Meanwhile, the trainer’s training programme for specific personnel should also be formulated and carried out by MHLG.

Guidance on how to prepare the LAP should be carried out by MHLG to all LAs through seminars and workshops by using the “Guidelines for Formulation of Local Action Plan on Waste Minimisation”. The Guideline and examples of the Local Action Plan is attached in the *Supporting Report*.

Activities include the following:

- (1) Formulating the “Core Team” and implement Trainers’ Training Programme on LAP, IMS & SS

(2) Implementing seminars and workshops to explain the “Guidelines for LAP” to LAs

### **A6-3: Establishment of Waste Minimisation Unit (WMU) in the LAs**

To develop the function of LAs in terms of waste minimisation practices and management of IMS, the Waste Minimisation Unit (WMU) should be established in each LA and supported by MHLG. The role of WMU will be as follows.

- Data collection/management and reporting
- Implementation of Waste flow survey
- Planning/conducting campaign
- Promotion of networking among stakeholders
- Publication of stakeholders’ directory
- Liaison with Stakeholders

Activities include the following:

- (1) Formulating regulative mechanism to establish Waste Minimisation Unit in LAs
- (2) Establishing WMU in each LA

### **A6-4: Formulation, Implementation and Monitoring of LAP**

LAPs on waste minimisation should be prepared and commence implementation by all LAs by the year 2010. As the first step, LAP formulation should be carried out in DB, MB and MP during 2006 and 2007. LAPs on the MD level should be prepared after 2008. Since the 3Rs activities in MD are affected nearby DB, MB, and MP, formulation of LAP at DB, MB, and MP levels should be started beforehand.

The monitoring of formulation and implementation of LAPs on waste minimisation should be carried out by MHLG.

Activities include following;

- (1) Formulating the Local Action Plans at DB, MB, and MP levels
- (2) Formulating the Local Action Plan at MD level
- (3) Implementing the Local Action Plan
- (4) Monitoring and evaluating Local Action Plans implementations



### Implementation Steps and Schedule

Implementation steps and schedule is shown in Table 5.2.8.

### Responsible Players/Agencies and their Roles

Players/Agencies	Roles
MHLG **	<ul style="list-style-type: none"> <li>▪ Preparation of national annual plan for Local Action Plans</li> <li>▪ Organisation of national conference/seminars for the formulation of Local Action Plan by Local Authorities</li> <li>▪ Establishment of Technical/Financial Assistance Mechanism for Implementation of Local Action Plans</li> <li>▪ Monitoring and evaluation of the Local Action Plan Implementations</li> </ul>
State Government	<ul style="list-style-type: none"> <li>▪ Assistance for the formulation and implementation of the Local Action Plan</li> </ul>
Local Authorities *	<ul style="list-style-type: none"> <li>▪ Collection and analysis of data and information in LA</li> <li>▪ Formulation of the Local Action Plan</li> <li>▪ Implementation of the Action Plan</li> </ul>
Concessionaires	<ul style="list-style-type: none"> <li>▪ Collection and provision data and information in their territory</li> <li>▪ Participation in the workshops in the course of Local Action Plan formulation</li> <li>▪ Participation in preparation and Implementation of Action Plan</li> </ul>
Business Entities	<ul style="list-style-type: none"> <li>▪ Collection and provision of relevant data and information on their organisation waste management system</li> <li>▪ Participation in the workshops in the course of Local Action Plan formulation</li> <li>▪ Participation in preparation and implementation of Action Plan</li> </ul>
NGOs/CBOs	<ul style="list-style-type: none"> <li>▪ Collection and providing data and information in their organisation</li> <li>▪ Participation to the workshops in the course of Local Action Plan formulation</li> <li>▪ Participation in preparation and implementation of Action Plan</li> </ul>
General Public	<ul style="list-style-type: none"> <li>▪ Participation to the workshops in the course of Local Action Plan formulation</li> <li>▪ Participation in preparation and Implementation of Action Plan</li> </ul>

Notes;   \*: Major implementation body of this Action.  
          \*\*: Major monitoring body of this Action.

**Table 5.2.8 Implementation Steps and Schedule of Action-6**

Activities	Implementation Bodies	Supporting Bodies	Monitoring Bodies	Schedule			
				2006	2007	2008	2009
<b>A6-1: Formulation of National Annual Plan for Local Action Plan on Waste Minimisation</b>							
(1) to formulate National Annual Plan for LAP on waste minimisation	MHLG	LAs, Concessionaires	MHLG				
(2) to formulate technical and financial assistance mechanism for LAP	MHLG	LAs, Concessionaires	MHLG				
(3) to hold national kick-off conference on LAP inviting all States and LAs	MHLG	States, LAs	---				
<b>A6-2: Dissemination of the Guidelines for LAP on Waste Minimisation</b>							
(1) to formulate the "Core Team" and implement Trainers' Training Programme on LAP, IMS & SS	MHLG, LAs (Core Team)	States, LAs	---				
(2) to implement seminars and workshops to explain the "Guidelines for LAP" to LAs	MHLG (Core Team)	States, LAs	---				
<b>A6-3: Establishment of Waste Minimisation Unit (WMU) in the LAs</b>							
(1) to formulate regulative mechanism to establish Waste Minimisation Unit in LAs	MHLG	EPU	---				
(2) to establish WMU in each LA	LAs	MHLG, EPU	MHLG				
<b>A6-4: Formulation, Implementation and Monitoring of LAP</b>							
(1) to formulate Local Action Plans at DB, MB, and MP levels	LAs	MHLG, Concessionaires	MHLG				
(2) to formulate Local Action Plan at MD level	LAs	MHLG, Concessionaires	MHLG				
(3) to implement Local Action Plan	LAs	MHLG, Concessionaires	MHLG				
(4) to monitor and evaluate Local Action Plans implementations	MHLG	States, LAs	MHLG				

**APPENDICES FOR  
ACTION PLAN**

<Appendix for Action-1>

**1. Summary of Existing and Proposed National Recycling Programme**

**(Current Recycling Initiatives by MHLG)**

- |                               |   |
|-------------------------------|---|
| 1. Launched:                  | December 2000   |
| 2. Primary objective:         | Inculcate the habit of the 3Rs  |
| 3. Ultimate aim of recycling: | To reduce usage of land for waste disposal<br>To reduce expenditure on solid waste management<br>To reduce importation of waste |
| 4. Secretariat:               | Recycling Unit, Environmental Health Engineering<br>Division, Local Government Department, MHLG                                 |

**National Recycling Programme (NRP)**

And

**Proposed Waste Minimisation Master Plan/ Federal Action Plan in Malaysia (2006-2010)**

Item	NRP	WMMP
Participant LAs	95 LAs are participating in NRP (2004)	<ul style="list-style-type: none"> <li>•Extend participation to all LAs</li> <li>•Actively promote networking</li> <li>•Operate and maintain IMS (Information management system) by MHLG</li> <li>•MHLG publicise Federal Action Plan on Waste Minimisation to LAs and other partners</li> <li>•MHLG promote Local Action Plans (LAPs-WM) (2006-2010) and guide LAs (Disseminate Model LAPs)</li> <li>•LAs prepare Local Action Plans</li> </ul>
Infrastructure arrangement	<3 colour bins> 10,797 bins at public places and 3,950 bins at collection centres (2004)	<ul style="list-style-type: none"> <li>•Continue providing bins on request of LAs</li> <li>•Type of bins should be flexible in order to meet the source separation method and collection system of recyclables in each LA</li> </ul>
	<Collection centres> The number of centres increased from 173 (2003) to 232 (2004)	<ul style="list-style-type: none"> <li>•Continue to provide through partnership programme of 3R activities</li> <li>•Type and design of collection centres should be flexible in order to meet the needs of local conditions</li> <li>•MHLG should provide support and monitor operation of centres incl. support of NGOs/CBOs</li> <li>•Success story should be compiled and distributed to the public</li> </ul>
	<Recycle collection vehicles> provided to some LAs	<ul style="list-style-type: none"> <li>•Continue to provide after consultation with LAs</li> <li>•Type of collection vehicle should be flexible in order to meet requirement of LAs</li> </ul>

Item	NRP	WMMP
	<ul style="list-style-type: none"> <li>•Division of Solid Waste Management (DSWM) established at LGD, MHLG under reorganisation in October 2005</li> <li>•Waste Minimisation Units (WMU) at LAs, are proposed e.g. MBM, MPPP.</li> </ul>	<ul style="list-style-type: none"> <li>•Adequate resources should be allocated to DSWM, LGD, MHLG (qualified and suitable personnel, funding and equipment)</li> <li>•MHLG should allocate adequate resources to the WMUs at LAs (qualified and suitable personnel, funding and equipment)</li> </ul>
<p>Raising Public Awareness</p>	<ul style="list-style-type: none"> <li>•"National Recycling Day" Nov. 11: Launched at Bukit Jalil, Kuala Lumpur in 2001</li> <li>•Public Awareness campaigns programme:               <ul style="list-style-type: none"> <li>-Posters, bulletins and leaflets</li> <li>-Campaign using electronic media, school buses, billboards, participation in exhibitions and carnivals.</li> <li>-Road shows in various towns at shopping malls and schools with the tagline "Think before you throw"</li> <li>-Introduction of "Fresh Friend and Mr. Waste"</li> <li>-Website: <a href="http://www.kitarsemula.com">www.kitarsemula.com</a> established and being updated at the end of 2005</li> <li>-Survey on awareness: 79% in 2002 and 100% in 2003</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>•MHLG should prepare National Annual Plans for Awareness (specify approach and focus).</li> <li>•MHLG should disseminate annual Plans to all LAs.</li> <li>•LAs should submit proposed respective Annual Plans to DSWM, LGD.</li> <li>•MHLG should collaborate with the Ministry of Education on strategic awareness and education programmes</li> <li>•MHLG should coordinate awareness plans with partners, e.g. concessionaires to ensure harmony and avoid duplication.</li> </ul> <p>&lt;National Recycling Day&gt;</p> <ul style="list-style-type: none"> <li>•National launch should have wider participation by LAs and other partners (other Government agencies, public sector and NGOs).</li> <li>•MHLG should encourage States and LAs to organise events throughout November (<i>National Recycling Month</i> is proposed)</li> <li>•The event should be organised in major cities in Malaysia on the same day or in <i>National Recycling Month</i>.</li> <li>•Nation-wide event and programme; such as 3Rs award for best 3Rs Community and/or Agency (private company) and/or school activities, should be organised.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p><u>Steps for 3Rs Award Programme:</u></p> <ol style="list-style-type: none"> <li>1. Formulation of 3Rs award programme by organiser (MHLG)</li> <li>2. Call/ invite participants on this programme.</li> <li>3. Participating communities/ agencies carry out 3Rs activities in line with the programme</li> <li>4. 3Rs activities by the participants will be evaluated by the programme organiser (MHLG)</li> <li>5. Among the participants, best community and/or agency will be awarded by organiser on the National recycling Day.</li> </ol> </div> <ul style="list-style-type: none"> <li>•<i>National Children's Programme on 3Rs (NCP3R)</i> should be introduced.</li> </ul>

Item	NRP	WMMP
		<p><b>&lt;Website&gt;</b></p> <ul style="list-style-type: none"> <li>•Website should be manned by qualified personnel (outsourcing is a possible option) and encourage interaction with users.</li> <li>•Publicise widely website</li> <li>•Progress and result of nation-wide event and programme should be periodically informed.</li> <li>•Stakeholders’ directory on 3Rs shall be disclosed.</li> <li>•Children’s contents should be renewed; incl. 3Rs activities in schools, attachment of Guidelines for Enhancement of 3Rs in Schools.</li> </ul> <p><b>&lt;Campaign&gt;</b></p> <ul style="list-style-type: none"> <li>•Awareness programme should be focused on strategic points for 3Rs as follows.                             <ol style="list-style-type: none"> <li>i. Source separation</li> <li>ii. Partnership programme on 3Rs</li> <li>iii. Green products and purchasing</li> <li>iv. My shopping bag</li> </ol> </li> </ul> <p><b>&lt;Schools&gt;</b></p> <ul style="list-style-type: none"> <li>•MHLG/MOE publish <i>Guidelines for Enhancement of 3Rs in School</i></li> <li>•MHLG monitor use of guidelines and revise as necessary</li> <li>•MHLG/MOE organise events for sharing of experience among schools.</li> <li>•NCP3R should be jointly organised by MHLG and MOE.</li> </ul>
<p>Data Collection/management</p>	<p>Data collection started from 2001</p> <p>Only 31 out of 95 LAs have been sending reports to MHLG</p> <p>Recycling Centre has been newly established in MHLG in 2005</p>	<ul style="list-style-type: none"> <li>•Waste Management Information Centre (WMIC) has been set-up by the pilot project in MHLG</li> <li>•WMIC should be the focal point for data collection/ management and information disclosure.</li> <li>•Information Management System (IMS) should be operated and maintained by MHLG.</li> <li>•<i>Recycling Centre</i> newly established at the ground floor of MHLG should be the focal point for 3Rs information for general public.</li> <li>•MHLG shall publish 3Rs performance data periodically for public information.</li> </ul>

## 2. Strengthening of NRP On-going Effort on Awareness

Item	Description of NRP on-going Efforts and Actions for their Strengthening
a) PR Materials and Diffusion media	
1. Publication media	<u>On-going efforts in NRP</u> <ul style="list-style-type: none"> <li>• Newspaper articles, advertisement, flyers</li> <li>• Pamphlets/leaflets</li> <li>• Posters/signage</li> <li>• Newsletters</li> </ul>
	<u>Actions to be further strengthened</u> <ul style="list-style-type: none"> <li>• Publication of magazines focusing on waste, recycling or environmental issues</li> <li>• Increasing frequency to monthly publications</li> <li>• Serial stories and/or feature articles in newspapers and magazines</li> <li>• Issuance of academic journals through cooperation with the academic society</li> </ul>
2. Internet tools	<u>On-going efforts in NRP</u> <ul style="list-style-type: none"> <li>• Kitar Semula Website</li> </ul>
	<u>Actions to be further strengthened</u> <ul style="list-style-type: none"> <li>• Upgrading of “Kitar Semula. com” as a recycling search engine in Malaysia</li> <li>• Continuous updating of the website</li> <li>• Mail magazines to provide latest information on waste minimisation to stakeholders upon request</li> </ul>
3. Radio/TV	<u>On-going efforts in NRP</u> <ul style="list-style-type: none"> <li>• Radio/TV spots</li> <li>• Radio/TV appearance of Ministers and officials in charge of recycling</li> </ul>
	<u>Actions to be further strengthened</u> <ul style="list-style-type: none"> <li>• Across-the-board short TV/radio programmes on waste or recycling</li> <li>• Special TV programme on recycling on government as well as commercially operated TV channels</li> <li>• Educational TV programme on waste management in general and recycling in particular</li> <li>• Educational movies on waste management in general and recycling in particular</li> </ul>
4. Others	<u>Actions to be further strengthened</u> <ul style="list-style-type: none"> <li>• Eco-labeling (labeling of recyclables and recycled goods)</li> </ul>
b) Campaigns	
1. Events	<u>On-going efforts in NRP</u> <ul style="list-style-type: none"> <li>• “National Recycling Day”</li> </ul>
	<u>Actions to be further strengthened</u> <p>More event planning in relation to waste minimisation, e.g. recycling contest, large-scale recycling market (Pasar Kitar Semula), flea market, etc.</p>
2. Exhibitions/ trade fairs	<u>On-going efforts in NRP</u> <ul style="list-style-type: none"> <li>• Eco-products Fair (co-sponsoring and/or participation as an exhibitor)</li> <li>• Participating in various exhibitions as an exhibitor</li> </ul>
	<u>Actions to be further strengthened</u> <p>More planning of relevant exhibitions and trade fairs/shows directly by the Government or under the sponsorship of private businesses</p>
3. Recycling business seminars	<u>Actions to be taken</u> <ul style="list-style-type: none"> <li>• Seminars aiming at creating business opportunity of recycling, focusing on specific recyclable items, recycling technologies, and so forth</li> </ul>

Item	Description of NRP on-going Efforts and Actions for their Strengthening
c) Development and Training of Leaders for Promotion of 3Rs	
	<p data-bbox="448 271 719 300"><u>On-going efforts in NRP</u></p> <ul data-bbox="448 300 1342 398" style="list-style-type: none"> <li data-bbox="448 300 1342 360">▪ Awarding to NGOs/ CBOs by the Minister of Housing and Local Government on the National Recycling Day.</li> <li data-bbox="448 360 959 398">▪ Encourage concessionaires to promote 3Rs</li> </ul> <hr data-bbox="448 398 1342 405"/> <p data-bbox="448 405 820 434"><u>Actions to be further strengthened</u></p> <ul data-bbox="448 434 1342 660" style="list-style-type: none"> <li data-bbox="448 434 1066 463">▪ Seminars/ workshops aiming at creating local leaders</li> <li data-bbox="448 463 1342 629">▪ Create of “Core Team” composed of counterparts and/or taskforce members of the JICA Study from MHLG and model LAs (MPPP, MPSJ, MDKS and MB Miri) in order to disseminate experiences/ information for the preparation and implementation of LAP-WM, operation of Information Management System(IMS), source separation practices etc.</li> <li data-bbox="448 629 1321 660">▪ Trainer’s training programme by MHLG with cooperation of the Core Team.</li> </ul>



### **<Appendix for Action-3>**

#### **Stakeholders Action and Product Life-cycle**

##### **(1) List of actions by stakeholders and product life-cycle**

Necessary actions and issues for waste minimisation to achieve the target shall be listed periodically considering progress and expansion of 3Rs activities in Malaysia.

Table 5.2.9 shows the activities list sorted out from a general viewpoint. As regulation and institutions for waste minimisation are not established at present in Malaysia, the activities depend on the initiative of the respective stakeholder. However, the Government in line with the National Recycling Programme will support them.

##### **(2) List of actions by major recyclable items**

Table 5.2.10 to Table 5.2.14 show the necessary activities on papers, plastic, tin and can, glass and organic.

Used newspapers, old magazines and carton are the major recyclable paper items. Recycle rate of paper is relatively high in Malaysia. Consumers will be required to use recycled paper, while producers will be required to develop recycling technology to use more used paper and to improve quality and competitiveness.

Table 5.2.9 List of Actions by Stakeholders and Product Life-Cycle

Product Life Cycle	Stakeholders	General Public and dischargers	Business					Government			
			Industry	Trade and sales	Recycle Player	Concessionaires	Federal	Local			
Production	Design & Production		Effective use of resource/energy	Effective use of resource/energy	Effective use of resource/energy	Effective use of resource/energy	Effective use of resource/energy	Guidance for effective use of resource	Guidance for effective use of resource	Guidance for effective use of resource	Guidance for effective use of resource
			Design and produce long-life product								
			Design and produce considering 3Rs	Appropriate package					Guidance for appropriate package	Guidance for appropriate package	Guidance for appropriate package
Consumption/Usage	Purchasing		Life Cycle Assessment of product						Promotion of green purchasing	Promotion of green purchasing	Promotion of green purchasing
			Use of reuse/recycle material								
			Use of long-life material								
Consumption/Usage	Consumption/Usage		Repair and maintenance service	Repair and maintenance service	Repair and maintenance service	Repair and maintenance service	Repair and maintenance service	Repair and maintenance service			
			Maintenance and repair								
			Separation of recyclables	Separation of recyclables	Separation of recyclables	Separation of recyclables	Separation of recyclables	Separation of recyclables			
Recycling	Collection/Transportation		Reduction of waste	Reduction of waste	Reduction of waste	Reduction of waste	Reduction of waste				
			Usage of available recycle system	Usage of available recycle system	Usage of available recycle system	Usage of available recycle system	Usage of available recycle system	Usage of available recycle system			
			Cooperation for recycle centre	Provide recycle centre	Provide recycle centre	Provide recycle centre	Provide recycle centre	Provide recycle centre	Promotion of recycling	Promotion of recycling	Promotion of recycling
Recycling	Recycling		Cooperation for separate collection								
			Self recycling	Self recycling	Self recycling	Self recycling	Self recycling	Self recycling			
			Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Support for recycling facility	Support for recycling facility	Support for recycling facility
Waste Disposal	Waste Disposal		Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Use of recycling product	Promotion to use recycle product	Promotion to use recycle product	Promotion to use recycle product
			Proper disposal	Proper disposal	Proper disposal	Proper disposal	Proper disposal	Proper disposal	Guidance for proper disposal	Guidance for proper disposal	Guidance for proper disposal
			Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility	Support for disposal facility

**Table 5.2.10 List of Actions for 3Rs by Stakeholders and Product Life-Cycle (Paper)**

Product Life-Cycle	Stakeholders	General public and dischargers	Business Entity				Government	
			Paper Industry	Trade and sales	Recycle Player	Concessionaire	Federal	Local
Production	Design & Production		Effective use of resource/energy	Effective use of resource/energy	Effective use of resource/energy	Effective use of resource/energy		
			Increase use of used paper					
			Develop new product for used paper	Appropriate package				
			Develop recycle technology	Develop simpler package method				
Consumption/Usage	Purchase	Use of recycle paper					Promotion to use recycled paper	Promotion to use recycled paper
		Use product with proper package						
		Return package of furniture, etc.						
		Use of recycled paper						
Recycling	Collection/Transportation	Separation of used paper	Separation of used paper					
		Usage of available recycle system		Cooperation for used paper collection	Collection of used paper	Promotion of used paper collection	Promotion of used paper collection	
					Provision of Recycle centre	Support to establish recycle centre	Support to establish recycle centre	
			Develop recycle facilities	Recycle of reused paper	Recycle of reused paper	Promotion to use recycle paper	Promotion to use recycle paper	
Waste Disposal	Waste Disposal	Use of recycled paper		Establish recycle facility	Establish recycle facility	Support to establish recycle facility	Promotion to use recycling product	Promotion to use recycling product
							Guidance for proper disposal	Guidance for proper disposal
					Proper disposal			

**Table 5.2.11 List of Actions for 3Rs by Stakeholders and Product Life-Cycle (Plastic)**

Product Life-Cycle	Stakeholders	General public and dischargers	Business Entity				Government			
			Plastic Processing	Trade and sales	Recycle Player	Concessionaire	Federal	Local		
Production	Design & Production		Effective use of resource/energy							
			Increase to use of recycled material							
			Appropriate package Develop recycle technology	Appropriate package Develop simpler package method						
Consumption/Usage	Purchase	Use of reuse/recycle material						Guidance for appropriate packaging	Guidance for appropriate packaging	
	Consumption/Usage	Use of long-life product								
	Discharge	Separation of plastic		Separation of plastic						
		Reduction of waste								
		Usage of available recycle system		Usage of available recycle system						
Recycling	Collection/Transportation	Cooperation for separate collection		Cooperation for separate collection	Collection of plastic	Provision of Recycle centre	Collection of plastic	Promotion of separate collection	Promotion of separate collection	
					Provision of Recycle centre	Provision of Recycle centre	Support to establish recycle centre	Support to establish recycle centre		
	Recycling		Develop recycle facilities	Recycle of Plastic	Recycle of Plastic	Recycle of plastic	Promotion of recycling	Promotion of recycling		
	Recycling product	Use of recycling product			Establish recycle facility	Establish recycle facility	Support to establish recycle facility	Support to establish recycle facility		
	Waste Disposal	Waste Disposal				Proper disposal	Proper disposal	Guidance for proper disposal	Guidance for proper disposal	

**Table 5.2.12 List of Actions for 3Rs by Stakeholders and Product Life-Cycle (Tin and Can)**

Product Life-Cycle	Stakeholders	General public and dischargers	Business Entity				Government		
			Canning Processing	Trade and sales	Recycle Player	Concessionaire	Federal	Local	
Production	Design & Production		Effective use of resource/energy						
			Increase to use of recycled material						
			Appropriate package Develop recycle technology	Appropriate package Develop simpler package method					
Consumption/Usage	Purchase	Use of reuse/recycle material					Guidance for appropriate packaging	Guidance for appropriate packaging	
	Consumption/Usage	Use of long-life product							
	Discharge	Separation of tin and can		Separation of tin and can					
		Reduction of waste							
		Usage of available recycle system		Usage of available recycle system					
Recycling	Collection/Transportation	Cooperation for separate collection		Cooperation for separate collection	Collection of tin and can	Promotion of separate collection	Promotion of separate collection		
					Provision of Recycle centre	Support to establish recycle centre	Support to establish recycle centre		
	Recycling		Develop recycle facilities		Recycle of tin and can	Recycle of tin and can	Promotion of recycling	Promotion of recycling	
		Recycling product	Use of recycling product		Establish recycle facility	Establish recycle facility	Support to establish recycle facility	Support to establish recycle facility	
		Waste Disposal				Proper disposal	Promotion to use recycled product	Guidance for proper disposal	

**Table 5.2.13 List of Actions for 3Rs by Stakeholders and Product Life-Cycle (Glass)**

Product Life-Cycle	Stakeholders	General public and dischargers	Business Entity				Government			
			Canning Processing	Trade and sales	Recycle Player	Concessionaire	Federal	Local		
Production	Design & Production		Effective use of resource/energy					Promotion to use returnable bottle	Promotion to use returnable bottle	
			Use of returnable bottle							
			Increase to use of recycled material							
			Appropriate package	Appropriate package						
Consumption/Usage	Purchase	Use of reuse/recycle material	Develop recycle technology					Guidance for appropriate packaging	Guidance for appropriate packaging	
		Use of returnable bottle								
	Consumption/Usage	Use of long-life product								
		Separation of glass & cullet	Separation of glass & cullet							
	Discharge	Discharge	Reduction of waste							
			Usage of available recycle system	Usage of available recycle system						
Recycling	Collection/Transportation	Cooperation for separate collection	Cooperation for separate collection	Collection of glass and cullet	Collection of glass and cullet	Promotion of separate collection	Promotion of separate collection	Promotion of separate collection	Promotion of separate collection	
			Provide to collect returnable bottle	Provision of Recycle centre	Provision of Recycle centre	Support to establish recycle centre	Support to establish recycle centre	Support to establish recycle centre		
	Recycling	Recycling	Develop recycle facilities		Recycle of glass and cullet	Recycle of glass and cullet	Promotion of recycling	Promotion of recycling	Promotion of recycling	
					Establish recycle facility	Establish recycle facility	Support to establish recycle facility	Support to establish recycle facility	Support to establish recycle facility	
	Waste Disposal	Waste Disposal	Use of recycling product				Promotion to use recycled product	Promotion to use recycled product	Promotion to use recycled product	
						Proper disposal	Guidance for proper disposal	Guidance for proper disposal	Guidance for proper disposal	

Table 5.2.14 List of Actions for 3Rs by Stakeholders and Product Life-Cycle (Organic)

Product Life-Cycle	Stakeholders	General public and dischargers	Business Entity				Government		
			Food Processing	Trade and sales	Recycle Player	Concessionaire	Federal	Local	
Production	Design & Production		Effective use of resource/energy						
			Appropriate package	Appropriate package					
Consumption/Usage	Purchase	Procurement with necessity	Develop recycle technology	Develop recycle technology				Guidance for appropriate packaging	Guidance for appropriate packaging
	Consumption/Usage	Cooking appropriate amount							
	Discharge	Not make residue							
		Separation	Separation	Separation	Separation			Promotion of home composting	Promotion of home composting
Recycling	Collection/Transportation	Home composting	Usage of available recycle system	Usage of available recycle system					
		Usage of available recycle system	Cooperation for organic collection	Cooperation for organic collection	Provision of organic collection centre	Provision of organic collection centre	Provision of organic collection centre	Promotion of organic collection	Promotion of organic collection
		Develop compost centre	Develop compost centre	Composting	Composting	Composting	Composting	Support to establish recycle facility	Support to establish recycle facility
	Recycling	Use of compost						Promotion to use compost	Promotion to use compost
	Waste Disposal	Waste Disposal						Proper disposal	Guidance for proper disposal

**<Appendix for Action-4>**

**Main Items needed to be covered in the SWM Act and Rules/ Regulations under the Act**

Main Items	Provisions
1. Clear definition of waste and category	<ul style="list-style-type: none"> <li>• Definition of solid waste by sources               <ul style="list-style-type: none"> <li>- Municipal solid waste</li> <li>- Institutional waste</li> <li>- Industrial waste</li> <li>- Scheduled waste</li> </ul> </li> </ul>
2. Clear definition on the roles and responsibilities of relevant stakeholders regarding waste minimisation	<ul style="list-style-type: none"> <li>• Stakeholders               <ul style="list-style-type: none"> <li>- Government</li> <li>- Private sector</li> <li>- General public</li> </ul> </li> <li>• Clarifying the mandate of federal/local authorities in solid waste management by types               <ul style="list-style-type: none"> <li>- Municipal solid waste</li> <li>- Industrial solid waste</li> <li>- Construction waste</li> </ul> </li> </ul>
3. Obligation of waste generators	<ul style="list-style-type: none"> <li>• Proper discarding and separation of solid waste at sources including:               <ul style="list-style-type: none"> <li>- Anti-littering of solid waste</li> <li>- No dumping of waste except for the area designated by law</li> <li>- Proper packaging and/or use of waste bins</li> <li>- Segregation of recyclables at sources</li> <li>- Segregation of hazardous materials</li> </ul> </li> </ul>
4. Solid waste collection	<ul style="list-style-type: none"> <li>• Obligations of SW collectors (concessionaires, contracted collectors) including:               <ul style="list-style-type: none"> <li>- Provision of proper collection facilities and equipment</li> <li>- Punctual and stable provision of collection services</li> <li>- Provision of segregated collection as applicable</li> <li>- Keeping and periodical (monthly) reporting of collection records</li> </ul> </li> </ul>
5. Solid waste recycling	<ul style="list-style-type: none"> <li>• Obligations of recyclers including:               <ul style="list-style-type: none"> <li>- Definition of players in recycling (collectors, traders, and recyclers)</li> <li>- Registration and licensing system</li> <li>- Keeping and periodical (monthly) reporting of recycling records (quantity of recyclable items collected, traded, and recycled).</li> <li>- Standards for recycling facilities and their operations</li> </ul> </li> </ul>



<Appendix for Action-5>

**Proposed Data and Information and their Sources in the Recycling Information Centre**

Major Items	Required Data	Sources
1. MSW Generation	<ul style="list-style-type: none"> <li>• MSW generation data               <ul style="list-style-type: none"> <li>- Household</li> <li>- Business entities</li> <li>- Manufacturers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Periodical survey is required (every 5 years)</li> </ul>
2. MSW Collection	<ul style="list-style-type: none"> <li>• MSW collection data</li> <li>• Area of MSW collection service               <ul style="list-style-type: none"> <li>- Households covered</li> <li>- Business entities covered</li> <li>- Manufacturers covered</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Concessionaires (AFSB, SWMSB, etc.)</li> <li>• SW collection contractors</li> </ul>
3. Collection of Recyclable Items based on Source Segregation	<ul style="list-style-type: none"> <li>• Collection data on recyclable items</li> <li>• Amount of source segregation of recyclable items               <ul style="list-style-type: none"> <li>- Household</li> <li>- Business entities</li> <li>- Manufacturers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Collectors of recyclable items (formal/ informal primary collectors)</li> <li>• Recycling centres (buy-back, drop-off centers)</li> </ul>
4. Segregation of Recyclable Items after Collection	<ul style="list-style-type: none"> <li>• Collection data of recyclable items</li> </ul>	<ul style="list-style-type: none"> <li>• Concessionaires (AFSB, SWMSB, etc.)</li> <li>• SW collection contractors</li> <li>• Middleman, traders</li> </ul>
5. Recycling	<ul style="list-style-type: none"> <li>• Amount of waste recycled in Malaysia</li> </ul>	<ul style="list-style-type: none"> <li>• Recyclers (paper, glass bottles, cans, plastics, etc.)</li> <li>• Manufacturers who accept recyclable items</li> </ul>
	<ul style="list-style-type: none"> <li>• Amount of waste exported as recyclable materials or processed raw materials</li> </ul>	<ul style="list-style-type: none"> <li>• Exporters (traders of recyclable items)</li> <li>• Custom office</li> </ul>
6. Disposal	<ul style="list-style-type: none"> <li>• The amount of waste disposed at landfills</li> </ul>	<ul style="list-style-type: none"> <li>• Landfill operators (weighbridge data)</li> </ul>



# **CHAPTER 6**

## **RECOMMENDATIONS**



## CHAPTER 6 RECOMMENDATIONS

To realise a *Material Cycle Society* in Malaysia, it is of great necessity to reduce waste generation at source, to minimise the amount of waste disposal at landfills and to maximise the efficiency of resource utilisation.

Meanwhile, the establishment of a “Sustainable Society” is the current international trend as declared in the Earth Summit in Rio de Janeiro in 1992 and the Johannesburg Summit in 2002, and waste minimisation is one of the key measures to achieve such a society.

In Malaysia, “Vision 2020”, declared in 1990, sets a challenge for Malaysia to become a fully developed nation by the year 2020, and to pursue environmental sustainable development as the basis for the development. Therefore, it can be said that the Malaysian government has a Global responsibility to establish an environmentally sustainable society, in line with the international trend.

Based on the above understandings, the Master Plan and Federal Action Plan on Waste Minimisation have been prepared. In line with the three (3) strategies of the Waste Minimisation Master Plan; i.e. “Enhancement of Awareness on Waste Minimisation”, “Strengthening of Partnership for 3Rs Activities” and “Enhancement of Institution to Strengthen Government Policies on Waste Minimisation”, it is recommended that MHLG take into consideration the key measures and recommendations of the Study.

### **Recommendation 1: Authorisation of Waste Minimisation Master Plan and Federal Action Plan**

The Waste Minimisation Master Plan and Federal Action Plan should be authorised with minimum delay by MHLG and implementation should start immediately thereafter.

Meanwhile, the “Solid Waste Management Act”, which will be the basic law on SWM in Malaysia, presently under preparation and examination by the related governmental agencies, should also be authorised and enacted in due time.

### **Recommendation 2: Improvement of the National Recycling Programme**

The National Recycling Programme (NRP) organised and implemented by MHLG since the year 2000 is a good practice in Malaysia. In line with the Waste Minimisation Master Plan and Federal Action Plan, in order for the NRP to function more efficiently and widely, tools and programmes of the NRP including events of the National Recycling Day should be improved and continuously implemented. Recommended main programmes for the improvement of NRP are as follows:

- Nation-wide campaign on source separation
- Nation-wide promotion of eco-products and green purchasing
- Nation-wide award programme for the best 3Rs Community and/or best 3Rs Agency
- National children’s programme on 3Rs

(Details of the proposed improvements to the NRP are discussed in Appendix for Action-1, Chapter 5.)

**Recommendation 3: Nation-wide Practice of Source Separation**

Based on the following clarification and understanding, the Study recommends that “Source separation” be practised as a key measure for waste minimisation in Malaysia.

- Source separation will lead to a reduction in waste generation amount at source
- Source separation will lead to an increase in amount of materials to be recycled
- Once waste is separated at source in a certain manner, some segregated materials will cease to be termed wastes and referred to as valuables
- Once waste is separated at source, further measures on 3Rs will easily be introduced in the future

It is recommended that MHLG expand the source separation activities nation-wide in the following manner.

- Carry out a nation-wide campaign on source separation
- Prepare and implement a national annual plan for source separation
- Formulate a network amongst stakeholders at the LAs level

(As for Federal Action Plan on Partnership Activities on 3Rs including Source Separation, refer to Action-3, Chapter 5.)

**Recommendation 4: Strategic Education and Awareness Programme**

One of key factors in the establishment of a “Material Cycle Society” is in the development of an “Eco-lifestyle” through environmental education and teaching of the younger generation. The philosophy of conservation of resources through sustainable waste minimisation practices and habits should be inculcated into the younger generation via their education in the school and in their co-curricular activities.

In order to introduce and sustain a strategic education and awareness programme, joint collaboration of Ministry of Housing and Local Government (MHLG) and Ministry of Education (MOE) is essential. Therefore, the collaboration between the two Ministries in Pilot Project –III should be continued in future. Under this collaboration, the following strategic education and awareness programme should be introduced.

- Nation-wide dissemination of the “Guidelines for the Enhancement of 3Rs Activities in Schools”
- Formulation and implementation of 3Rs award programme for schools in LA, State and National level.

(Details of the Federal Action Plan on 3Rs Activities in Schools are discussed in Action-2, Chapter 5.)

**Recommendation 5: Continuation and Expansion of the Information Management System**

MHLG should be the focal point of all information and data on 3Rs. MHLG established the “Recycling Information Centre” within the Ministry and the JICA Study carried out a pilot project involving ten LAs to establish data management system on solid waste management and 3Rs on the national level. This information management system should be continued and expanded to all LAs in Malaysia.

Furthermore, as shown in the pilot project, the response of the LAs to participate and provide meaningful data needs to be strengthened through efforts to explain the objectives of the IMS system, understand the obstacles facing some LAs to provide the required data, and simplify the data collection format to encourage participation from the LAs.

**Recommendation 6: Strengthening of Institutional System**

MHLG should ensure that the recently established Recycling Networking Unit (RNU) should continue to function and be provided with the necessary staff and budget to sustain its activities.

It is recommended that a Waste Minimisation Promotion Committee be established to coordinate the efforts of the various federal and local government agencies and related stakeholders in the field of waste minimisation. MHLG should lead these efforts as a coordination body.

As clearly verified by each pilot project, there is a necessity to establish a Waste Minimisation Unit (WMU) in each local authority to function as a communication platform for all the related stakeholders and to serve as a focal point on 3Rs. MHLG should formulate the regulative mechanism to establish the WMU in the LAs. State Governments should also consider including waste minimisation duties within their present organisation and structure to oversee SWM activities.

The WMU will have the following major tasks.

- Enhancement of awareness on 3Rs by the general public together with MHLG
- Formulation of recycling players’ networking at the local level
- Planning, coordinating and monitoring the source separation activities
- Operation of information management system (IMS) on SWM and recycling
- Base for the dissemination and sharing of information on 3Rs

It is also equally critical that adequate resources be allocated to each WMU so that the unit (with qualified and suitable personnel, funding and equipment) can discharge its role and tasks efficiently and effectively.

**Recommendation 7: Waste Minimisation and Privatisation**

It is generally accepted that the promotion of waste minimisation and/or recycling would lead to a reduction of the amount of waste collected and disposed, and in consequence significantly affect current payment mechanisms to SWM companies and/or concessionaires in the country.

On the other hand, privatisation of SWM services is a developing trend in Malaysia, driven by government policy. Therefore, collaboration between the government and operating companies

to promote waste minimisation practices within the privatisation framework should be established.

Based on this understanding, the following measures need to be considered for more effective promotion of waste minimisation in Malaysia.

- Recycling activities such as collection and treatment of recyclables and awareness activities may be partially provided by SWM companies and/or concessionaires.
- Means of payment to the SWM companies and/or concessionaires for their services need to be re-considered. For example, in addition to the present amount base payment, service quality-base payment also needs to be considered.
- Incentives for SWM companies and/or concessionaires to support waste minimisation and recycling need to be considered; i.e. provide subsidy for construction of recycling oriented facilities.
- Recycling targets set by concessionaires need to be considered to be linked to the mechanism of payment to them. (Based on the NSP, concessionaires should prepare the SWM master plan for their territory and set the recycling target.)