CHAPTER 7

PILOT PROJECT III: ENHANCEMENT OF SCHOOL ACTIVITIES ON 3RS

CHAPTER 7 PP-III: ENHANCEMENT OF SCHOOL ACTIVITIES ON 3RS

7.1 Background

Schools have an important role in promoting and implementing waste minimisation or 3Rs (Reduce, Reuse & Recycle) activities in Malaysia. There are currently about 9,550 schools in the country and the potential of inculcating waste minimisation practices in the young is phenomenal. In 2004, records of the MHLG show that more than 800 schools and colleges are implementing waste minimisation programmes in one form or another. MHLG and other key players i.e. State Governments, LAs, the Ministry of Natural Resources and the Environment, NGOs, solid waste concessionaires, newspaper groups and private companies have been conducting various programmes in schools. The main activity is the collection and sale of paper, plastic and aluminium cans. Other activities include the organisation of award-oriented programmes e.g. "Sekolah Lestari" by Ministry of Education (MOE) and the Department of Environment (DOE), Penang Chief Minister's Green Award and the Natural Resources & Environment Board Sarawak's bi-annual award for PALS Clubs, etc. These programmes were and are carried out on a voluntary basis and are not compulsory. Since August 2004, feedback received by the JICA Study Team via participation of teachers at roundtables or discussions at local authorities as well as at, the study's workshop/ seminars and visits, indicated that the activities have been mostly ad hoc in nature, and furthermore, are either insufficient or non-sustainable - the primary reason being that teachers do not have adequate capability and facilities to initiate and conduct such activities or to maintain these programmes.

To assist schools in developing a sustainable programme for 3Rs activities, the JICA Study Team has drafted a set of guidelines as well as designed a number of programmes to be used by teachers to enhance 3Rs programme and activities in schools.

7.2 Outline of PP-III

7.2.1 Project Purpose

The project purpose of PP-III is to generate and enhance awareness on 3Rs amongst students and teachers.

7.2.2 Outputs

To achieve the project purpose of PP-III, the outputs outlined in the table below are to be achieved.

Table 7.2.1 Outputs of PP-III

Output 1	3Rs education programme in school is implemented.
Output 2	3Rs activities awards programme in school is implemented.
Output 3	Capacity of school teachers on 3Rs is developed.

7.2.3 Activities

Activities conducted to achieve Output 1 are to establish 3Rs education programme in schools. Current 3Rs activities in schools are carried out on an ad hoc basis and there are no integrated guidelines for implementation and promotion of the waste minimisation or 3Rs activities in schools. Schools have relied on various leaflets/flyers issued by government agencies, solid waste concessionaires and NGOs.

In order to create and raise school children's awareness on 3Rs, promote practice of 3Rs, and make it sustainable, MHLG and the JICA Study Team have decided to prepare the guidelines on 3Rs activities in schools. These guidelines will help teachers start a waste minimisation programme or improve an existing one. The guidelines prepared were tested in schools in Johor States in pilot scale.

Activities 1: Establishment of 3Rs Education Programme in School	
1-1	Preparation of Guidelines on Enhancement of 3Rs Activities in Schools
1-2	Implementation of 3Rs Activities Programmes in Schools in Johor

Activities conducted to achieve Output 2 include the preparation of a 3Rs award programme for schools. The 3Rs programme is not entirely new to many schools. However, insufficient motivation and funds have deterred schools from implementing their programme.

Therefore, the focus of the 3Rs Award programme in this project was designed for giving due recognition and appreciation to the best schools in Majlis Bandaraya Miri (MBM) in their effort in conducting 3Rs activities.

Activities 2: Establishment of 3Rs Award Programme for School	
2-1	Implementation of 3Rs Award Programme in Majlis Bandaraya Miri

Activities conducted to achieve Output 3 include the preparation of 3Rs materials to improve the capacity of school teachers in 3Rs education. The programme is designed to engage them in developing related 3Rs information materials that could be useful for them in schools.

Activities 3: Capacity Development of School Teachers	
3-1	Preparation of 3Rs Education Material
3-2	Conducting Workshop for School Teachers

7.2.4 Implementation Schedule

The various activities are staged over a period of about 22 weeks as shown in the Implementation Schedule in Table 7.2.2.

Table 7.2.2 Implementation Schedule of PP-III

	Activities	Jun	Jul	Aug	Sep	Oct	Nov
1	**Prep. of Guidelines on Enhancement of 3Rs Activities in Schools**						
1.1	Drafting of guidelines						
1.2	Workshop on guidelines with teachers			△			
2	**Implementation of 3Rs Activity Programme in Schools in Johor**						
2.1	Development of trial programmes for schools						
2.2	Explanatory meeting				△		
2.3	Implementation of 3Rs activities						
3	**Implementation of 3Rs Award Programme for Schools in Miri**						
3.1	Development of 3Rs award programme						
3.2	Identification and selection of schools						
3.3	Explanatory meeting for schools			△			
3.4	Implementation of 3Rs activities						
3.5	Monitoring and evaluation of schools - Monitoring - Evaluation (Achievement report) - Evaluation (Site inspection)						
3.6	3Rs award ceremony					◎	
3.7	Capacity development of school teachers - Preparation of education material - Workshop with teachers				△		

The relationship between the designed activities and expected outputs arising from the project and the study framework is graphically shown in the flow diagram, Figure 7.2.1.

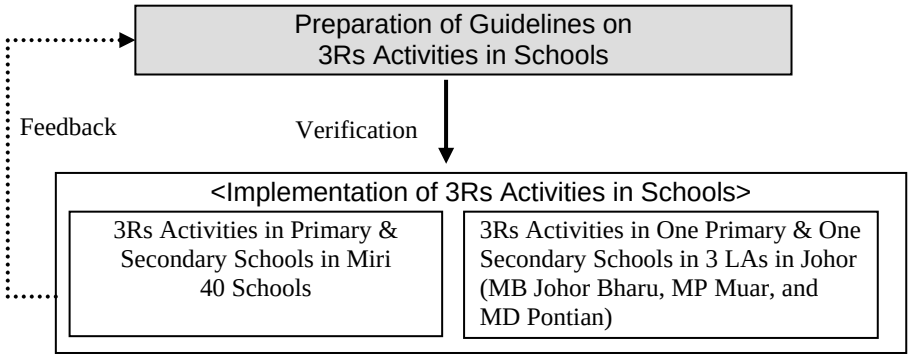


Figure 7.2.1 Framework for Enhancement of 3Rs Activities in Schools

Partnerships and networking are extremely crucial to the success of instilling waste reduction awareness and practice amongst school teachers and students. During the PP-III, partnership was made at the federal level, state level, as well as local level.

At the planning stage of the pilot project in Johor, a series of formal and informal meetings were held between MHLG, MOE and the JICA Study Team to brainstorm on the form of collaboration between the two ministries. After several meetings, MHLG and MOE reached an agreement to collaborate and undertake the following;

- MHLG and MOE to jointly hold a workshop with teachers, target LAs, and other stakeholders to discuss educational materials, etc.

- MOE to request Johor State Education Department to select participating schools.
- MHLG and MOE to jointly hold briefings on programmes to teachers in Johor.

The implementation procedure for school activities in Johor is as shown in Figure 7.2.2.

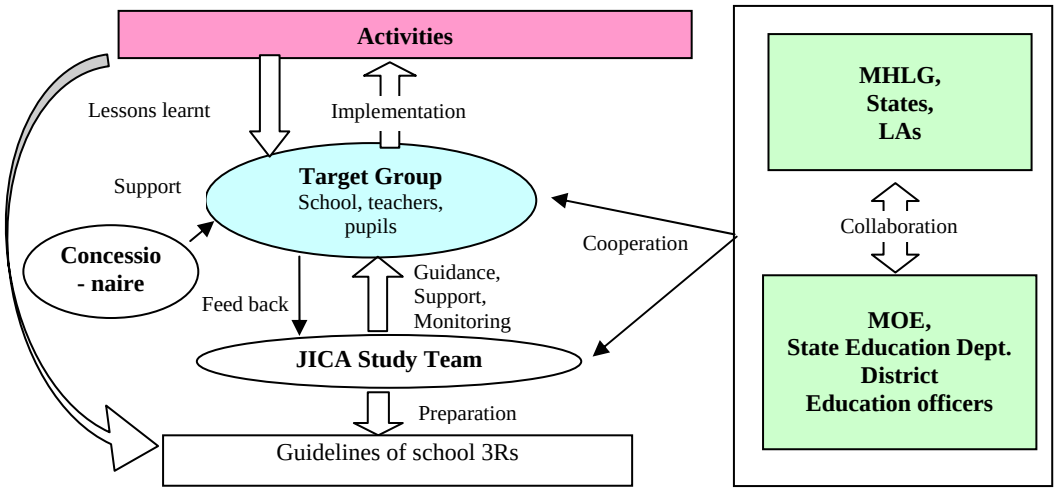


Figure 7.2.2 Basic Implementation Structure for School Activities

7.3 Preparation of Guidelines on Enhancement of 3Rs Activities in Schools

7.3.1 Drafting of Guidelines

The Guidelines are drafted by the JICA Study Team, with the ultimate aim of minimising waste generation and disposal, and thereby reducing impacts on the environment. At the school and community levels, the guidelines are aimed at:

- Streamlining 3Rs Activities in Schools
- Encouraging Participatory Approach
- Recognising Efforts in the 3Rs
- Ensuring Sustainability of 3Rs Programmes in Schools

The target group or primary end-users are teachers in primary and secondary schools through out the country who are interested in initiating, improving and sustaining a waste minimisation programme.

The guidelines introduce the concept of categorising schools into 3 groups according to their prevailing level of awareness and participation in 3Rs activities, and provide step-by-step instructions to assist schools engaged in each level of 3Rs-related activities: -

Level 1: Without a Waste Minimisation Programme

Level 2: With a Basic Waste Minimisation Programme

Level 3: With an Active Waste Minimisation Programme

The process for planning and implementing a school's 3Rs programme is based on the PDCA (Plan-Do-Check-Act) concept. Contents of the Draft Guidelines are as shown below.

Guidelines on Enhancement of 3Rs Activities in Schools	
CHAPTER 1	WHAT ARE THE 3Rs (reduce, reuse & recycle)?
CHAPTER 2	WHY HAVE A 3Rs PROGRAMME
CHAPTER 3	PLAN-DO-CHECK-ACT CYCLE APPROACH
CHAPTER 4	WHERE DO I START?
CHAPTER 5	STEP 1: PLANNING (PLAN)
CHAPTER 6	STEP 2: IMPLEMENTATION (DO)
CHAPTER 7	STEP 3: MONITORING & MEASUREMENT (CHECK)
CHAPTER 8	STEP 4: REVIEW & IMPROVEMENT (ACT)
CHAPTER 9	3Rs PDCA FOR BEGINNERS (LEVEL1)
ATTACHMENTS & APPENDICES	

7.3.2 Workshop on the Guidelines

The workshop was held on 18th August 2005 at the Pan Pacific Hotel in Kuala Lumpur to present the draft of the guidelines for the users, especially teachers, to look through the details of the drafts and to obtain feedback or suggestions to improve and fine-tune the guidelines. Participants included 7 specialist school teachers, representatives from MHLG, MOE, DOE, and LAs.

After the briefing on the Guidelines, the participants were divided into two (2) discussion groups to brainstorm and fine-tune the Guideline contents. Major comments that arose during the discussions were as follows;

- The concepts of the Draft Guidelines including the use of the "Plan-Do-Check-Act" cycle to initiate 3Rs programmes in schools are acceptable.
- The checklist of activities that can be undertaken by each level of schools is helpful.
- The Guidelines were relevant and certainly needed to assist teachers, in particular teachers with no experience or exposure in starting a 3Rs programme, to introduce, start, implement and sustain 3Rs programme in schools in a systematic manner. The Guidelines were also seen by the participating teachers as a useful mechanism to provide comprehensive information about the 3Rs to students.
- Notwithstanding the above response, some participants cautioned that some teachers, especially teachers in Level 1 schools, might find the Guidelines too technical and too ambitious to implement. The recommendation was to simplify the language further, use keywords, and provide a summary so that the guidelines could be easily understood and implemented by all schools.

7.4 Implementation of 3Rs Programme in Schools in Johor

3Rs programmes in line with the Guidelines were conducted in 6 schools in Johor State to test the Guidelines on a pilot scale.

7.4.1 Development of Programmes for Pilot Project

3Rs programme and activities for this pilot project were designed specifically to assist the schools to implement the programme and activities during the 5-week pilot project from September to October 2005.

Three levels of 3Rs programmes and activities were prepared for the pilot project, essentially in recognition of the different levels of awareness to waste minimisation in schools. Outline of the programme designed for pilot project are as shown in

Table 7.4.1.

The complete 3 programmes and their respective Action Plans designed for the pilot project are appended in "Guidelines on Enhancement of 3Rs Activities in Schools".

Table 7.4.1 Outline of Programmes for the Pilot Project

	Level 1	Level 2	Level 3
Objective	• To enhance students' and staffs' awareness on 3Rs • To minimise waste generated from school		
	• To introduce the concept of source separation at source	• To reduce use of plastic bags in canteen	• To convey the message to their family members
Target area	Classroom, Staff room, School office	Canteen	Students' home
Activities	• Set up the 3Rs Team • Conduct waste survey in class room • Set up a recyclables collection point in each classroom	• (Set up the 3Rs Team) • Conduct waste survey at canteen • Replace plastic bags for drinks into reusable cups • Encourage teachers/students to bring own mug.	• (Set up the 3Rs Team) • Conduct waste survey at home

7.4.2 Selection of Schools for Pilot Project

A number of meetings between representatives of MHLG, MOE and JST were held between July and August 2005 to discuss the form of collaboration in the pilot project. At the final interface of 22nd July 2005 between the three agencies, the Director-General of MHLG proposed that the 6 schools selected for the pilot project must be representative of schools from the 3 categories of LA – Majlis Bandaraya (City Council), Majlis Perbandaran (Town Council) and Majlis Daerah (District Council). Based on his recommendation, Majlis Bandaraya Johor Baru, Majlis Perbandaran Muar and Majlis Daerah Pontian were selected to test the applicability of the Guidelines.

With instructions from MOE, the Johor State Education Department selected 3 primary and 3 secondary schools with varying levels of 3Rs awareness as shown in Table 7.4.2.

Table 7.4.2 Participating Schools in Pilot Project

	Name of School	Level of 3Rs Awareness	Student Population	Teacher Population
1	Sekolah Kebangsaan Pasir Putih, Pasir Gudang	Level 3 (active 3Rs programme)	1,230	69
2	Sekolah Menengah Kebangsaan Bandar Baru UDA, Johor Bharu	Level 3 (active 3Rs programme)	1,986	98
3	Sekolah Menengah Kebangsaan Sri Perhentian, Pontian	Level 2 (basic 3Rs programme))	1,338	84
4	Sekolah Kebangsaan Tengku Mahmood Iskandar 1, Pontian	Level 2 (basic 3Rs programme))	785	48
5	Sekolah Kebangsaan Sultan Abu Bakar 1, Muar	Level 2 (basic 3Rs programme)	213	22
6	Sekolah Menengah Kebangsaan Tengku Mahmood Iskandar, Muar	Level 1 (no 3Rs programme)	1,234	76

The level of 3Rs activities in each school was evaluated based on criteria introduced in the "Guidelines." Key criteria are as summarised in Table 7.4.3.

Table 7.4.3 Key Evaluation Criteria

Component	Activities
1) 3Rs Policy	• The school has a mission statement or policy for waste reduction • The school has an action plan and annual targets to achieve • The school has an active team to coordinate and manage 3Rs activities
2) Reduce	Staff and students are actively practicing reduction in school
3) Reuse	Staff and students are actively involved in re-using items in school
4) Recycle	The school actively practices recycling in classroom, staff room, office, canteen, science laboratory, garden, etc.
5) Monitoring	The school has an existing system of monitoring and checking on adherence and practice of the 3Rs amongst staff and students.
6) Information Dissemination and Communication	The school has an on-going system or practice to continually remind, inform and educate staff and students on the 3Rs, or may also have a 3Rs programme involving parents and/or the community.

7.4.3 Explanatory Meeting for Participating Schools

A briefing session was held in Johor on 1st September. The participants included 6 school teachers and representatives from the Johor State Education Department, District Education Office of Johor Bahru, Muar and Pontian and Majlis Bandaraya Johor Bahru, Majlis Perbandaran Muar and Majlis Daerah Pontian. A representative from MHLG, MOE (the Science and Mathematics Unit of the Schools Division) and three representatives from Southern Waste were also present.

The school teachers were requested to use the Programmes and Action Plans as templates and to modify or add to them to suit their particular needs and circumstances.

7.4.4 Implementation of 3Rs Activities

The 6 schools embarked on the pilot project on 12th September 2005. The 3Rs programmes were implemented in an organised and systematic way that reflected the use of the "Plan-Do-Check-Act (PDCA)" method advocated in the Guidelines. The activities carried out by each school during the pilot project periods and achievements are as shown in Table 7.4.4.

7.4.5 Achievement of Pilot Project in Johor

Although awareness and practice of waste minimisation in the 6 schools vary considerably, the pilot project succeeded in achieving the following results:

- Reinforce awareness amongst staff and students on the need to adopt a 3Rs lifestyle in school as well as at home.
- Recognise that the school principal must be a 3Rs leader if the 3Rs programme in school is to succeed and be sustained.
- Recognise that waste minimisation is a team effort and that the 3Rs Team must be supported by sub-committees comprising of fellow teachers and senior students.
- Involve parents and the community in the school's 3Rs programme so that the 3Rs lifestyle is adopted both in school as well as in the home.
- Establish partnerships and networking with the LAs and local waste collector/recycler and to tap these organisations for assistance, support, etc.

Table 7.4.4 Activities and Achievement of Pilot Project in Johor

School	Participation	Initiatives	Achievements
SK Pasir Putih, Pasir Gudang (Level 3 awareness in 3Rs)	• 9 classes (3Rs in class) • 100 students (transfer of 3Rs message to the family)	• 3Rs Team formed to oversee implementation of programme and activities in Year 4 and Year 5 classes. • PTA was informed of pilot project in the class room and canteen • 2 written reminders were given to students and parents to bring own drink containers. • 100 students were randomly selected to convey 3Rs awareness to the home. • Parents were encouraged to submit comments and opinions on the ongoing 3Rs programme. • Recycling corner was set up. • Information newsletter and bulletin board were improved. • 3Rs Camp and campaign undertaken during last week of school. • "I Love the Environment" button campaign officially launched in school by the LA. • Poster competition. • Old newspaper collection competition.	During the 5-week pilot project period, the following were achieved: 1. Reinforcement of 3Rs awareness amongst staff and students. 2. Participation and cooperation from staff and students were encouraging. 3. 40% of families selected for 3Rs awareness responded positively. 4. Involvement of the LA and PTA in campaigns.
SMK Bandar Baru UDA, Johor Baru (Level 3 awareness in 3Rs)	• 40 students (transfer of 3Rs message to the family	• Survey involved students from different socio-economic background – kampong, squatter and urban environment	1. 100% response from the urban-based families surveyed. 2. Poor response from the rural-based and economically disadvantaged families.
SK Tengku Mahmood Iskandar 1, Pontian (Level 2 awareness in 3Rs)	• Entire school (3Rs in class, staff room & office) • Entire school (plastic bag reduction in canteen)	• 3Rs Team led by Head of HEM (Student Affairs Unit). • Sub-committees formed to co-ordinate 3Rs activities in Office, Staffroom, Classroom, Science Lab, Canteen, information and communication on 3Rs • Undertook a pre-pilot project audit of waste paper and plastic bags in classroom and canteen. • Undertook pre-pilot project questionnaire survey to gauge students' awareness • 20 students selected to convey 3Rs message to family • Old newspaper collection	1. General awareness of the 3Rs amongst staff and students improved. 2. Participation from staff & students encouraging. 3. Reduction in quantity of recycled paper by almost 70%. 4. Canteen operator succeeded in reducing plastic bags used by almost 90%.

School	Participation	Initiatives	Achievements
SMK Sri Perhentian, Pontian (Level 2 awareness in 3Rs)	• 2 classes (3Rs in class) • Entire school (plastic bag reduction in canteen)	• 3Rs Team led by Head of *Ko-korikulum*. • 4 sub-committees formed to co-ordinate 3Rs activities in Office, Staffroom, Classroom and Canteen. • 1 sub-committee formed to co-ordinate information and communication on 3Rs and environmental issues connected with it. • 1 sub-committee formed to organise and co-ordinate the Environment Week held on last week of school year. • A pre-pilot project audit of waste paper and plastic bags in classroom and canteen was undertaken. • Whilst students were encouraged to bring their own drink containers, black plastic bags were also placed at strategic points in the canteen for the disposal of used plastic bags. • Recycled paper and discarded plastic bags were weighed and quantity recorded on a weekly basis. • 3Rs Quiz held for Secondary 4 students. • Paper-making project initiated using newspapers. Paper was used to make wrapping paper, boxes, bookmarks and other decorative items. • 3Rs newsletter.	1. General awareness of the 3Rs amongst staff and students improved. 2. Participation and cooperation from staff and students was encouraging. 3. Significant reduction in quantity of recycled paper generated in classroom and staffroom. 4. Significant reduction in the quantity of plastic bags generated at the canteen. 5. Commitment from school principal to extend the programme to include the entire school in 2006. 6. Establishment of 3Rs Club to implement and manage 3Rs programme and activities.
SK Sultan Abu Bakar 1, Muar (Level 2 awareness in 3Rs)	• Entire school (3Rs in class) • Entire school (plastic bag reduction in canteen)	• 3Rs Team led by Head of (Student Affairs Unit). • Sub-committees formed to co-ordinate 3Rs activities in Office, Staffroom, Classroom, information and communication on 3Rs. • Old newspaper collection.	1. General awareness of the 3Rs amongst staff and students improved. 2. Participation and cooperation from staff & students encouraging.
SMK Tengku Mahmood Iskandar, Muar (Level 1 awareness in 3Rs)	• 7 classes (3Rs in class) • Entire school (plastic bag reduction in canteen)	• 3Rs Team led by Assistant Head. • Sub-committees formed to co-ordinate 3Rs activities in Office, Staffroom, Classroom, Science Lab, Canteen, information and communication on 3Rs. • Undertook a pre-pilot project audit of waste paper and plastic bags in classroom and canteen. • Undertook pre-pilot project questionnaire survey to gauge students' awareness. • 20 students selected to convey 3Rs message to family. • Old newspaper collection.	1. General awareness of the 3Rs amongst staff and students improved. 2. Participation from staff and students was encouraging. 3. 75% reduction in quantity of recycled paper generated in classroom.

7.4.6 Findings from Pilot Project in Johor: Comments on the Draft Guidelines

According to feedback from the participating teachers, Level 1 and Level 2 schools found the tips and sample formats particularly useful, easy to follow and helped them to organise, plan and implement the 3Rs programme in a systematic and co-ordinated manner.

Whilst Level 3 schools have an on-going waste minimisation programme, nevertheless, these schools felt reassured that their ongoing programme and activities were undertaken in a manner that is consistent with the approach recommended in the Draft Guidelines. With that knowledge, feedback from Level 3 schools indicated that they are confident to embark on activities that involve bringing the waste minimisation message to the family and community, and possibly serving as a waste reduction leader in the community in future.

Table 7.4.5 summarises the verbal feedback from school principals and teachers coupled with an evaluation of the waste reduction effort undertaken by the 6 schools over the 5-week period.

Overall, the Draft Guidelines were regarded useful and easy to apply. However, it still can be further improved so that it can be used with even greater ease by schools of all levels, and in both rural and urban environment throughout the country.

Table 7.4.5 Feedback from School Principals and Teachers

Useful Tips in the Guidelines	Proposals for Improvement
1. A coordinated and systematic approach for the school administration to start, plan and implement a 3Rs programme. 2. Useful sample templates, formats and checklists for waste audits, eco-reviews, surveys and monitoring of achievements. (These templates are useful as they save time and resources for the teachers). 3. Alternatives ideas for waste reduction activities in school and at home. 4. A preliminary list of contacts with the federal and local government agencies, local waste collectors, major recycling agents, non-government agencies and major recyclable re-processing factories. The list is useful for purpose of establishing networks and sourcing for assistance and information in future	1. Reorganisation of instructions and templates according to the 3 different levels of 3Rs awareness so that users, in particular the teachers, of a particular level can easily locate the appropriate information and instruction. 2. Attachment of more templates for eco-review, monitoring and activities. 3. A list of relevant websites and links to enable teachers and students to network with organisations and agencies with similar interest as well as to source for more information on the environment and waste minimisation. 4. A more comprehensive list of contacts on a region or state wide basis

Arising from feedback from the participating schools, the "Guidelines on Enhancement of 3Rs Activities in Schools" was further fine-tuned so that it is user-friendlier and reflects the needs, circumstances and capacity of schools at all levels. The final draft of the Guidelines is attached in Part 1, Volume 2 Guidelines.

Photo image of 3Rs activities in Johor is shown in Plate 7.4.1.

Workshop on Guidelines for School 3Rs(KL)

Briefing for 3Rs Programme in Johor

Reuse Activities in Classroom (SK Pasir Gudang)

3Rs Information Corner in Classrooms

Waste Separation in Classrooms
(SK Pasir Putih)

3Rs Briefing to Students
(SK Pasir Putih, Pasir Gudang)

Sculptures from Aluminium Cans
(SMK Sultan Mahmood Iskandar, Muar)

Making Handicraft from Recyclables
(SK Sultan Abu Bakar, Muar)

Plate 7.4.1 PP-III Activities in Johor State

7.5 Implementation of 3Rs Award Programme in Miri

7.5.1 Preparation of PP 3Rs Awards Programme

The 3Rs programme is not entirely new to many schools in Miri. However, motivation for schools to implement or further their programme in waste minimisation is deterred by a variety of reasons, that may include lack of funds, inadequate capacity or interest from teachers, inadequate encouragement, support and recognition from the LA, Department of Education, Parents-Teachers Association, community and the like. Therefore, the focus of the 3Rs Awards programme in Miri is to give due recognition and appreciation to the best schools in the effort in conducting 3Rs activities.

The programme was implemented in accordance with the procedure shown in Figure 7.5.1.

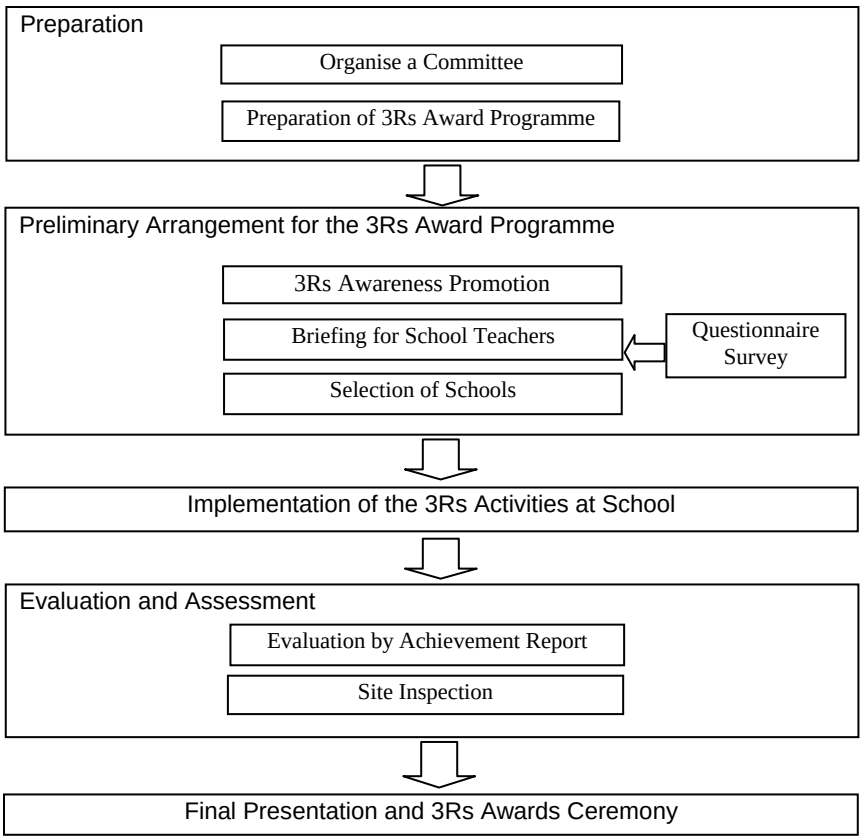


Figure 7.5.1 Flow Chart of 3Rs Award Programme

7.5.2 Organisation and Implementation Framework of 3Rs Award Programme

The organisation of the 3Rs Awards Programme was carried out mainly under the leadership of Miri LA21 Solid Waste Reduction Group, supported by the pilot project. The main collaborators in the organising committee were Miri LA21 in MBM, NREB, DOE, and other NGOs. The organisation structure for implementation of the award programme was as shown in Figure 7.5.2.

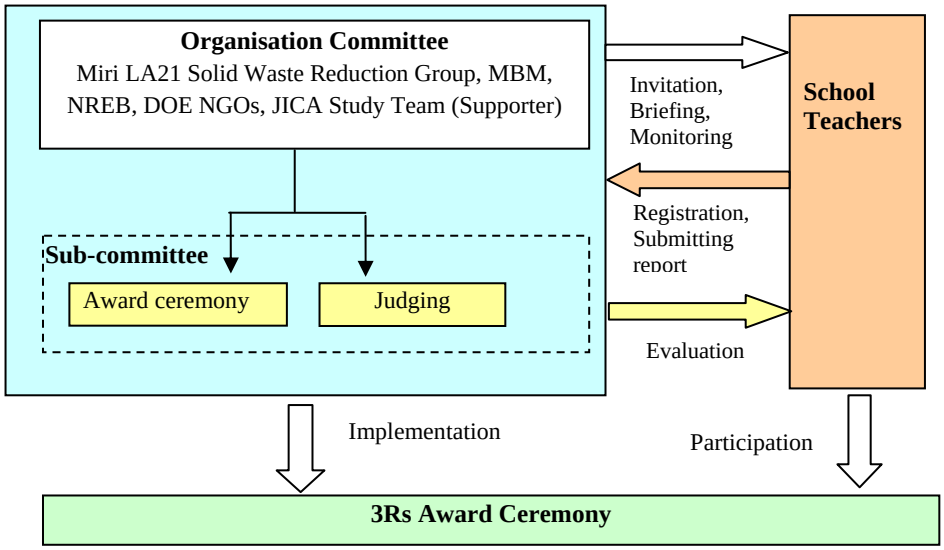


Figure 7.5.2 Organisation Structure of PP-III

< Roles of Organisation Committee>

- Decision making on the following subjects
  - School invitation and follow up
  - Judging criteria and timing
  - Prizes and award ceremony

- Overseer of the Implementation of Award Programme

< Role of sub-committee>

- Actual implementation of detail tasks

7.5.3 Explanatory Meeting for Schools

Miri LA21 Solid Waste Reduction Group, targeting all the 40 Schools, organised an explanatory briefing. Twenty-three (23) out of 40 schools turned up at the briefing whereby most schools were represented by two teachers and staff. Overall, 46 teachers and staff attended the event.

The meeting activities were as follows.

i) Distribution of information leaflet on 3Rs Awards Programme.

ii) Briefing of 3Rs Awards Programmes

The briefing included both awareness raising and description of the 3Rs Awards programme details. The topics covered were:

- Solid Waste Management in Miri by MBM;
- Background of 3Rs Awards in the Primary and Secondary Schools by NREB;
- Detailed information on the Judging System/ Assessment and Prizes of Awards.

iii) Distribution of recycling plastic bags and recycle boxes

The recycling boxes and recycling bags were distributed to participants to encourage them to set up their source separation system in their respective schools.

In addition, another workshop with school teachers was held on 16 September 2005 to assist schools especially teachers to obtain various ideas for competition in the 3Rs Awards as well as the implementation of 3Rs educational programme in schools in general.

7.5.4 Implementation of 3Rs Award Programme

(1) Selection of Schools

Selection of participating schools was based on the forms and questionnaires received. Nine (9) schools registered for the 3Rs Awards Programme as shown in Table 7.5.1.

Table 7.5.1 List of Schools Registered for the 3Rs Award Programme

	Participating schools	Principal/Headmaster/ Teacher in-charge
Primary schools		
1	SK Jalan Bintang	En. Hamdan Bin Bakeri En. Borhan Bin Mohd Sari
2	SJK Chung San, Riam	En. Huang Kee Woo Mdm. Lau Min Ing
3	SK St. Columba	En. Simon Cheong Chan Voon Mdm. Siti Marlini Bt. Kamil
4	SJK Chung Hua, Miri	Mr. Jong Kok Ching
Secondary schools		
5	SMK Riam	Pn. Rosnani Hj. Yunus Cik Pui Tze Yang
6	Kolej Tun Datu Tuanku Hj. Bujang, Miri	Cik Hasimah Bt. Abg. Zen
7	SMK Baru Miri	Cik Ang Siew Jim Cik Tracy Ak Mensan
8	SMK Pujut, Senadin	Pn. Sophia Limi Cik Jyneer Ak. Mekong
9	SMK St. Columba	En. Wong King Kui Cik Noor Khatisah Bt. Hamdin

(2) 3Rs activities in each school

Participating schools implemented 3Rs activities at their schools from August to October 2005. Some of the examples activities to be carried out by primary and secondary schools are listed in Table 7.5.2.

Table 7.5.2 Sample of 3Rs Activities in Primary and Secondary Schools

School	Activities
Primary Schools	
SJK Chung San	• 3Rs awareness campaign (Morning announcements and staff meeting) • Collection of recyclable items (Competition among classes) • Creative handicrafts during art lessons • Setting up of 3Rs and recycling corner in classroom • Study tour to recycling centres, public library, other schools, etc. • Drawing competition • 3Rs Fund (Save proceed from selling recyclables and donate money to the less fortunate and spend for farewell parties, children's day celebration.) • 3Rs Exhibition
SJK Chung Hua	• Reduce programme (Bring own food containers to the canteen to reduce polystyrene packs) • Reuse programme (Built "Late warning light" from second hand solar panel and flag pole.) • Collection of recyclables (newspapers, plastic bottles and clothing) • Composting • 3Rs awareness campaign, talk • Drawing competition (comic and poster)
Secondary Schools	
SMK Riam	• Reduce programme (Monitor and reduce paper wastage) • Handicraft using used materials (replica of symbols representing Sarawak) • Repairing of broken tables and chairs • Collection of recyclables with PTA, neighbouring residents, and recycling agents. • Setting up of recycling corners in every class • Briefing on correct usage of recycling bins during school assembly involving teachers and students.
SMK St. Columba	• Reusing of the single-sided paper • Collection of old newspapers
Kolej Tun Datu Tuanku Haji Bujang	• Reusing of plastic containers to make a model for their biology class) • Collection of recyclables (newspapers, aluminium cans and unwanted cooking pans), and competition • Landscaping (Built a replica of the Petronas Twin Towers from 4220 discarded aluminium cans.) • Classroom teaching (Conduct mini project on 3Rs during lessons) • Exhibitions, poster making, craft work, etc.

7.5.5 Monitoring / Evaluation of 3Rs activities

The organising committee monitored the 3Rs activities at each school. An evaluation of activities was done by the 3Rs Award committee based on the following evaluation criteria.

- 3Rs Planning & Physical Work
- Initiatives in Waste Reduction & Reuse
- 3Rs Awareness Program
- Amount of recyclable items collected
- 3Rs Organisation Set Up
- Creativity of the 3Rs Programme & Activities

The judging system was divided into three (3) main parts, i.e., evaluation of achievement report, site inspection and assessment of achievement, and the final presentation at the Award Ceremony (Figure 7.5.3)

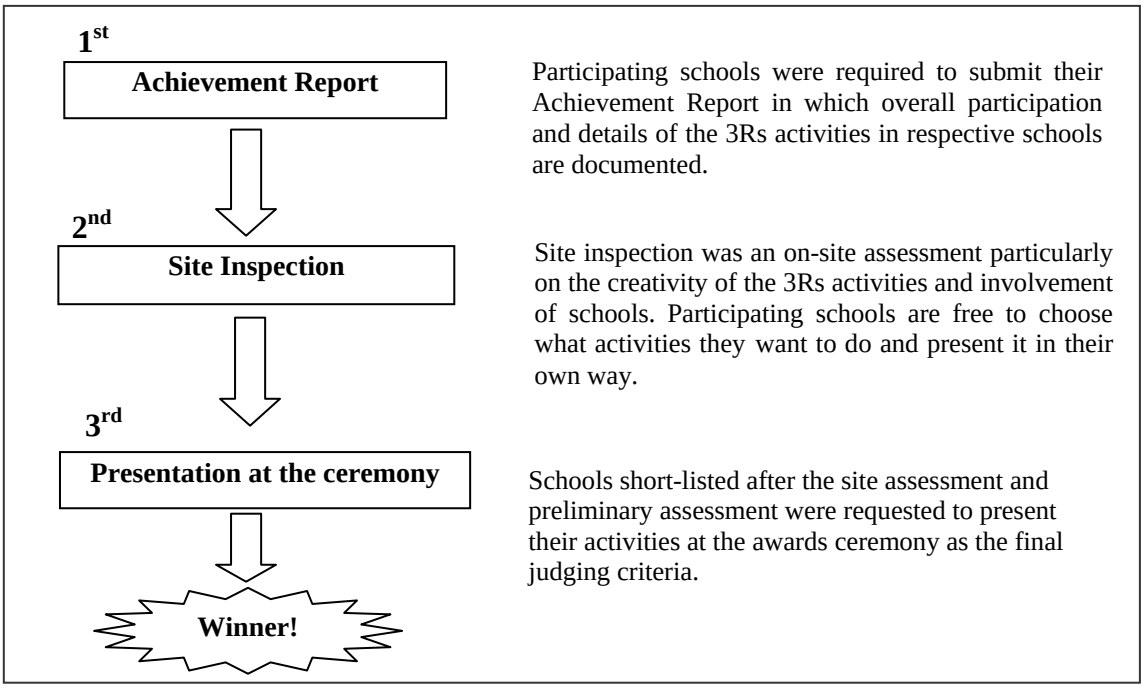


Figure 7.5.3 Judging System for the 3Rs Awards in 2005

The panel of judges comprised of representatives from NREB, the MBM, the Education Department, JICA Study Team, NGOs etc. Two judging panels were set up, one assessing reports in-house and another for on-site judging. The in-house judging committee completed the evaluation of survey forms and achievement reports while the on-site judging committee took charge of the site assessment and the final presentation.

7.5.6 Conducting of 3Rs Award Ceremony

The 3Rs Award Ceremony was held on 28th October 2005 in Miri. Five (5) schools finalists (2 from primary schools, 3 from secondary schools) presented their activities at the ceremony. Datuk Mayor of Miri City and representatives from MHLG, the City Secretary of MBM, and Miri LA21 Chairman, Education Department in KL and Miri, Ministry of Environment and Public Health Sarawak, Miri Resident Office representative were invited.

(1) Presentation of Finalists Schools

The 5 school finalists for both categories that presented at the ceremony were as shown in Table 7.5.3.

Table 7.5.3 List of Finalists Schools

Primary schools	Secondary schools
1. SK Chung Hua, Miri	1. Kolej Tun Datuk Tuanku Hj Bujang, Miri
2. SK Chung San, Miri	2. SMK St. Columba
	3. SMK Riam

Representative from each school presented school background, their objectives and goals of 3Rs programmes, 3Rss plans, organisation chart of 3Rs team and actual 3Rs activities in their schools.

(2) Exhibition

The school finalists exhibited their creative products, colourful posters and other attractive ideas. The schools from Johor and Miri LA21 also exhibited their work, 3Rs reports, photos and other related information as part of the sharing of experiences and networking among schools in Malaysia.

(3) Presentation of Prizes and Certificate of Appreciation

After presentation, committee and guests carried out final judging; winners for the 3Rs Award Programme 2005 were decided as in Table 7.5.4. All participating schools received a certificate of appreciation.

Table 7.5.4 Results of 3Rs Award Programme 2005

Item	Primary School	Secondary School
Champion	SK Chung San, Miri	SMK Riam
Runner-up	SK Chung Hua, Miri	SMK St. Columba
2nd Runner-up	-	Kolej Tun Datuk Tuank Hj Bujang
Achievement Awards	SK Jalan Bintang & SK St. Columba	SMK Pujut Senadin & SMK Baru

7.5.7 Capacity Development of School Teachers

Based on the findings of the preliminary review on the current status of environmental education, the "3Rs Resource Kit" was developed with following 2 main sections:

- Awareness raising: background of the problem, issues related, fact sheets;
- Activities: actual educational project ideas related to 3Rs for students.

This educational material was presented at the workshop held on 16 September 2005 at the Dynasty Hotel, to get the feedbacks from school teachers. Fourteen (14) teachers from 9 schools participated in this workshop where information materials on 3Rs were provided to the teachers, and hands-on activities such as recyclable separation activities were introduced and demonstrated. Photo image of 3Rs activities in Miri is shown in Plate 7.5.1.

Briefing to Teachers

Banner for 3Rs Award at the School Entrance

Construction of Replica of Twin Tower from Aluminium Can

Presentation at Award Ceremony

Award for Champion

Exhibition at Award Ceremony

Hands-on Activities (Source Sorting Demonstration) at Workshop for Teachers

Plate 7.5.1 PP-III Activities in Miri

7.6 Evaluation of PP-III

7.6.1 Achievement Level of Pilot Projects

Based on the objectively verifiable indicators (OVIs) of the PDMs, the achievement level of Project Purpose and outputs of PP-III were evaluated as shown in Table below.

Table7.6.1 Achievement Level of the Pilot Project I

Project Purposes/ Outputs	OVIs	Achievement Level
Project Purpose Awareness on 3Rs for students and teachers are enhanced.	Number of schools pertaining to 3Rs education programme, 3Rs activities/ awards programme.	Project purpose was partially achieved. 9 schools (4 primary schools and 5 secondary schools) out of 40 schools in Miri registered 3Rs award programme, and pertained to workshop on 3Rs education material. Teachers who attended workshop/meeting enhanced awareness on 3Rs through the discussion with organisation committee and other teachers. Students in schools pertained to 3Rs programme also aware the importance of 3Rs. However, the number of schools participated programme was limited.
Output 1: 3Rs education programme in school is implemented.	Number of schools introduced the 3Rs education programme	3Rs education programme was implemented at 9 schools registered to this project.
Output 2: 3Rs activities awards programme in school is implemented.	Number of schools entry the 3Rs activities/ awards programme	9 schools were entered 3Rs awards programme.
Output 3: Capacity of school teachers on 3Rs is developed.	Number of teachers participated in workshop/seminar.	14 teachers attended the workshop on education material. From the feedbacks from teachers who attended workshop/meeting, it can be said their capacities were developed through the discussion and hands-on activities introduced at the workshop.

7.6.2 Evaluation by OVIs

Table 7.6.2 Evaluation of PP-III

Criteria	Evaluation
Relevance	Considering the fact that MHLG has been conducting several activities targeted at school students under NRP, PP-III is compatible with MHLG's policy. In addition to federal, project purpose and overall goal of PP-III are compatible to the needs of local counterparts, as LA 21 Solid Waste Reduction Group have been trying to develop a programme for 3Rs award before this study.
Effectiveness	The project purpose has been partially achieved at the end of the pilot project, as described in the Table above.

Criteria	Evaluation
Efficiency	Despite the time constraint, the 6 participating schools in Johor achieved significant results during the short project period primarily due to the eagerness of school teachers and their enthusiastic efforts. On the other hand, the PP in Miri encountered problems between JICA and Miri LA21 Solid Waste Reduction Group due to misunderstanding over organisational roles and a line of communication that was relatively undefined. These problems caused significant delay in implementation of the project in Miri.
Impact	The project had great impact on the school teachers in Johor and MOE, who indicated its intention to extend the 3Rs programme to other schools in Johor and in future other states using the guidelines drafted in tandem with the PP. The appreciation given to the 6 participating school teachers from Johor at the Awards Ceremony in Miri will further encourage them to promote or sustain 3Rs activities in their schools, and possibly to act as "mentors" to other schools in Johor. With respect to Miri, the campaign conducted during this project also gave a positive impact on promotion of 3Rs activities among general public in Miri, as well as schools.
Sustainability	The LA21 Solid Waste Reduction Group has started formulating a committee for the Award ceremony in 2006. Whether the annual event can be sustained is dependent on whether the group might be able to secure financial aid or funding for the ceremony. Extension of the 3Rs programme to cover the rest of Johor and the other states in future is dependent on MOE, and availability of financial resources and aid.

7.6.3 Lessons Learnt and Recommendation

(1) Lessons Learnt

1) Partnership and Collaboration of Key Movers

At the federal level, the key movers of 3Rs activities in schools are MHLG and MOE. Therefore, partnership and close collaboration between the two ministries are extremely crucial to the success of instilling waste reduction awareness and practice amongst students. Joint collaboration, support and coordination are key elements needed to introduce and implement 3Rs programmes and activities in schools and sustain interest and commitment from school principals and teachers. At the local level, the State Education Department and the LA are the key agencies to support and coordinate the 3Rs programme.

2) Commitment and Leadership

For the 3Rs programme to succeed, school principals, as chief administrator of the school, must assume leadership of 3Rs programmes. In addition to instruction, the commitment of schools principals is essential to move and motivate teachers and students in carrying out the programme.

3) Support from Relevant Parties

Waste minimisation is a team effort and the 3Rs Team must be supported by sub-committees comprising of fellow teachers and senior students. In addition, involvement and support of school top management and the community including parents is needed.

4) Involvement of Waste Collectors/Recyclers

Equally important is establishing a partnership with the waste collector/recycler who collects and/or buys recyclables from the schools on a periodic basis.

5) Education, Awareness and Access to Information

Effective communication is of prime importance to disseminate information on the relevance of waste minimisation to teachers and students. Generally, Students' understanding of waste minimisation and the type of items that can be items recycled is limited; hence, easy access to information, and conversely, efficient and effective information dissemination is essential.

6) Access to Technical Experts

There is also a general need to improve access to technical experts who would be willing to provide advice to schools on waste minimisation, alternative ways to re-use items, recycle, etc.

7) Co-ordination and Monitoring

Clarification of roles and tasks distribution among the teachers and senior students must be clear at the outset of the project and commitment should be sustained and come from all parties. Continuous monitoring and follow up of the implementation of the programme is extremely important.

Furthermore, coordination of the various 3Rs activities in schools is important to avoid too many overlapping activities being organised at the same time.

8) Funding

Funds must be available from the MOE, MHLG, DOE, LA or the PTA and conditions for expenditure of these funds must be flexible.

9) Training

Skilled trainers and facilitators are required to guide the schools to initiate 3Rs programme. Alternatively, training programmes on 3Rs need to be developed and made available by MOE, MHLG or LA; the contents of the training programmes need to suit each target group (teachers, officers from LAs, schools) and their specific requirement.

10) Incentives and Rewards System

Unlike primary school students who could be coaxed or coerced into participation and cooperation, secondary school students, on the other hand, need a different approach and stimulus to instil a greater sense of interest and enthusiasm on the need to practise the 3Rs lifestyle in school as well as in the home environment.

(2) Recommendations

Based on the lessons learnt from the 3Rs programme undertaken in Johor and Miri, measures need to be undertaken to strengthen and sustain 3Rs activities in schools. These recommendations are summarised as follows.

1) Partnership and Support of External Parties in 3Rs Activities in School

More involvement and commitment from the LA, PTA and community is crucial. This also includes establishing partnerships and networking with the LA and local waste collectors and recyclers and tap these organisations for assistance and support of school 3Rs activities.

MHLG and MOE need to play a more effective and active role in promoting and strengthening communication of school waste management education and assistance information, as well as to stimulate keener interest and participation in waste minimisation amongst schools. The existing website of both ministries need to be upgraded and their contents expanded to promote current 3Rs programmes, activities and contact information.

2) Extension of 3Rs Programme Within District/State

With the development of the Guidelines and programmes to assist school to initiate 3Rs programme and activities, the experience of Johor and Miri could be extended to all schools within the district and incrementally to the entire State so that waste reduction is seen as a concerted effort and collaboration with the LA (within the respective district) to promote or implement a district-wide waste reduction programme.

3) School to Serve As Mentor and Community "Champion"

Schools that have shown initiative, resolve and a strong track record in waste minimisation efforts could be encouraged to convey the message to other schools and the community. One of the ways is through the establish of a recycling centre or community collection point at the school where supporters of the school's 3Rs programme can bring their recyclables and proceeds from the sale of recyclables go towards the school's development fund.

4) 3Rs Award Program for School

3Rs Award Programme should be designed systematically with clear goals and targets for both the organisers as well as the schools. Promotion and explanation of the 3Rs award programme to the target group i.e. schools, particularly to the principals who would be making the decision, should be well organised. Apart from formal invitation letter, it is worth to consider promotion through:

- Media – announcement, write ups of past champions, what they benefited etc.;
- Roadshow – an interactive promotion tour to introduce and instill the interest of schools to take part. This could include posters, pamphlets and briefings;
- Support from Education Department – clear endorsement and encouragement for schools to participate.

Committees consisting of the related authorities need to be formed within a city/town to implement the 3Rs Award. Funding for 3Rs programme implementation is crucial and well-planned budget proposals must be prepared and submitted to relevant authorities well in advance.

Capacity of the organisers especially the key implementation personnel must be strengthened to include the following:

- Knowledge in 3Rs
- Communication and facilitation skills;
- Managerial and organisation skills.

Awareness, guidance and capacity building should be designed for participating schools as part of the award to improve the ability of headmasters/principals, teachers, students as well as parents.

CHAPTER 8

WAY FORWARD

CHAPTER 8 WAY FORWARD

Overall, it can be concluded that the PPs undertaken in conjunction with the WM-M/P and A/P have only partially achieved the objectives set out in the Study. Whilst the Study has assisted in the setting up the Recycling Networking Unit at the federal level, the Waste Minimisation Unit at the local authority level, a formal stakeholders networking system at the federal and local level and a source separation programme in certain housing areas and commercial establishments, the evaluation findings, on the other hand, showed that the PPs did not receive full participation and cooperation from some of the stakeholders, including the institutional players. Neither did the PPs totally succeed in sustaining interest and commitment amongst the stakeholders, especially after the duration of the pilot project.

Encouraging participation both from institutional players and service users is essential to the success of waste minimisation efforts. Indeed, effectiveness and sustainability depend in large part on the commitment of all interested parties or stakeholders. The key measures to increase participation rate of stakeholders, both public and private, lie with the government – federal, state and local.

8.1 Enhancement of MHLG's Role

Certainly, one of the key measures to increase public awareness and participation in waste minimisation efforts starts with MHLG – that is, how effective it is in planning, coordinating and monitoring 3Rs programmes at federal level; disseminating information and providing support (including funds) to the state and local authorities; working in closer collaboration with other ministries, in particular the Ministry of Education and the Department of Environment; and maintaining consistent liaison and communication with the other stakeholders.

To do that, the Recycling Network Unit of MHLG must be staffed with trained and informed personnel to interact with the LAs and other stakeholders on a regular basis, monitor feedback and disseminate information to the public.

8.2 Increased Involvement of the State Government

The recent episode of foul-smelling domestic water supply in the Klang Valley and the probable contributing role of the various landfill sites to the problem illustrates the need for the state government to be more involved and be "in control" over matters related to solid waste management, and invariably, the state of existing waste minimisation programmes within the state. The federal government's solid waste management policy and strategy and long-term goal of "sustainable environment" can only succeed with support, commitment and close collaboration from the respective state governments, and through them the respective local authorities in the country.

8.3 Commitment from the Top Management of the Local Authorities

The relatively slow start experienced in the implementation of PP-II in MPPP, MPSJ and MBM and the low participation rate of LAs in PP-I are primarily due to absence of a "push" from the top-management of the LA. Allocation of more manpower and

funds and commitment from the top-level management are crucial to initiate and/or sustain 3Rs programme, coordinate and monitor other stakeholders.

VOLUME III (PILOT PROJECTS)
APPENDICES

APPENDIX 1

MINUTES OF MEETING FOR PP-I

1.1 1ST MEETING ON 11 JULY 2005

1.2 2ND MEETING ON 11 AUGUST 2005

1.1 1st Meeting on Pilot Project – I (on 11 July 2005)

Title: PP-I Meeting, Presentation of Review of Present Reporting Format
Date: Monday, 11th July 2005
Time: 9.30am – 12.15 pm
Venue: MHLG, 4th Floor Meeting Room

Attendance list

No.	Name	Designation
1	Ir. Fong Tian Yong	LGD, MHLG
2	En. Huszian Bin Husin	LGD, MHLG
3	Wan Azura bte Wan Mohd Nasir	LGD, MHLG
4	En. Kamaruazaha Bin Nawawi	LGD, MHLG
5	Mr. Goh Seng Chee	Majlis Daerah Kinta Selatan
6	Ms. Lolita Jaime Nicholas	Majlis Bandaraya Miri
7	Hj. Zulkifli B. Zakaria	Majlis Perbandaran Pulau Pinang
8	Pn. Azura Bt. Mohd Don	Majlis Perbandaran Subang Jaya
9	En. Mohd Hafiz B. Sharif	Majlis Perbandaran Subang Jaya
10	Mr. Koay Chuen Hoe	Southern Waste Management Sdn. Bhd
11	Pn. Sarifah Bt. Yaacob	Alam Flora Sdn. Bhd.
12	Mr. Kohshi Takahata	JST
13	Ms. Tan Yee Noon	JST
14	Mr. Theng Lee Chong	JST
15	Mr. Ng Han Kok	JST
16	En. Mohammad Aman Samsurey	JST

Key Points

1.0 General

1.1 JST briefed on PP-1 covering general scope of PP-1, new reporting format and stakeholders networking.

1.2 In addition to MPPP, MPSJ, MB Miri and MD Kinta Selatan, 6 others LAs would be selected to try out the new reporting format which JST has designed to ensure uniformity and consistency in reporting from the LAs. The new reporting format has classified the recyclables into sub-categories and according to volume collected at each buy-back centre or collection location within the LA concerned.

1.3 To rationalize the data collection process, JST also proposed that data be captured from 2 areas only: the buy-back centres and recyclable receivers.

1.4 Ir. Fong (MHLG) suggested that Residents Association (RA) should be involved in future.

1.5 Pn. Sarifah (Alam Flora) agreed to the need for a uniform reporting format, and advised that the proposed recyclable collection data form be fine-tuned as certain categories (e.g. Wood) are not relevant or are being handled by Dept of Environment (e.g. Batteries) and therefore, should be removed from the list.

Other amendments to the data list include the following:

1.5 Mixed Paper
3.2 Other Plastic Containers
3.3 Foamed Plastics/Styrofoam
4.1 Aluminium Cans (delete Steel Cans, Tin Cans, Iron Metal, Stainless Steel)
4.2 Ferrous
4.3 Non-ferrous

1.6 To En. Zulkifli's (MPPP) suggestion that the traders/recyclers be registered under LAs, Ir. Fong (MHLG) informed that there is a clause in the draft bill for Solid Waste that requires recyclable receivers to be registered with the LA. En Zulkifli also requested MHLG to write officially to MPPP to setup a buy back centre on Penang Island as there is currently no such facility on the island.

1.7 JST requested MHLG to arrange for internet installation in its operation room at Ground Floor of Recycling Centre of MHLG building.

2.0 Matters Agreed

2.1 The Meeting agreed that the 10 selected LAs try out the draft Recyclable Data Collection Form starting 1st August 2005.

2.2 In addition to MPPP, MPSJ, MB Miri and MD Kinta Selatan, it was mutually agreed that the following LAs be invited to participate in the pilot project. They include: DBKL, Perbadanan Putrajaya, MPKuantan, MBJB, MDLipis, DBKK and MBKuching Selatan.

2.3 The Meeting also agreed to MHLG's suggestion to have a second meeting with all the LAs in late July. MPSJ was chosen as the next venue for the meeting and the itinerary should include a visit to MPSJ's buy-back centre as well as the Recycling Centre at Carrefour, Subang Jaya. MHLG and MPSJ will make the necessary arrangements.

3.0 Issues/Problems

3.1 Ir. Fong questioned regarding the management of data collection and reporting format of Southern Waste, Alam Flora and waste collection contractors at Northern Region.

3.2 En. Huszian offered his reservation that the new reporting format may not capture the recycling pattern of households, commercial and institutional facilities. Mr Takahata (JST) informed that in Japan, a survey is undertaken periodically to track the household recycling pattern as well as to augment information received from the recyclers/receivers, and suggested that similar periodical survey be considered.

3.3 En. Huszian also queried about cross boundary activities about who should be responsible. Pn. Sarifah from Alam Flora Sdn. Bhd. responded that we should be clear on the tackling point whether it is under Federal, State or local level. She went on to state that to avoid double counting, the end users should be determined.

3.4 Ir. Fong asked about the accuracy of waste data in landfill, particularly in landfills without any weighbridge. Pn. Sarifah clarified that in landfills without weighbridges, estimation of waste amount is undertaken by assigning an estimated volume to each lorry size.

3.5 MPSJ explained that their buy-back centre is currently manned by 2 staff and the sub-categorisation as proposed in the new reporting format may pose some problem.

3.6 Mr. Takahata explained that the accuracy and usefulness of the outcome of the Data Management System, i.e., estimation of daily waste generation rate and recovery rate, is also dependent on the latest population information.

Prepared by

Ng Han Kok
PP-I Coordinator

Photographic Records of Meeting

1.2 2nd Meeting on Pilot Project – I with 10 LAs (11 August 2005)

Title: PP-I, Presentation of Review of Present Reporting Format
Date: Thursday, 11th August 2005
Time: 9.30am – 11.30 am
Venue: Meeting Room 1, Majlis Perbandaran Subang Jaya

Attendance List

No.	Name	Designation
1	En. Huszian Bin Husin (Chairperson)	Director, Environmental Health Engineering Division (EHED), Local Government Department (LGD), MHLG
2	Cik Wan Azura bte Wan Mohd Nasir	Assistant Director, EHED, MHLG
3	En. Kamaruazaha Bin Nawawi	Technical Assistant, EHED, MHLG
4	Y.M. Tg. Shukri Atan Engku Yusoff	Technical Assistant, EHED, MHLG
5	Dr. Suriani Bte. Ismail	Majlis Perbandaran Subang Jaya
6	En. Mohd Hafiz Bin. Sharif	Majlis Perbandaran Subang Jaya
7	Pn. Rozaini Zambahari	Majlis Perbandaran Subang Jaya
8	Faradiyatul Liana Abu Samah	Majlis Perbandaran Subang Jaya
9	En. Mohd B. Nasir	Dewan Bandaraya Kuala Lumpur
10	En. Hassan Basri Osman	Dewan Bandaraya Kuala Lumpur
11	En. Robert Lipon	Dewan Bandaraya Kota Kinabalu
12	Mr. Lim Kaa Kuan	Majlis Bandaraya Kuching Selatan
13	En. Razali Md. Nor	Majlis Bandaraya Johor Bahru
14	Cik Norainn Kasiman	Majlis Bandaraya Johor Bahru
15	Mr. Sam Khai Khiong	Majlis Bandaraya Miri
16	En. Omairi Bin Hashim	Perbadanan Putrajaya
17	En. Mohd Azmi Amer Khan	Majlis Bandaraya Shah Alam
18	En. Mohd Zafri Abdul Manaf	Majlis Bandaraya Shah Alam
19	En. Shakri Bin Haji Rashid	Majlis Perbandaran Pulau Pinang
20	Hj. Zulkifli B. Zakaria	Majlis Perbandaran Pulau Pinang
21	En. Abd. Rahim Abd. Manaf	Majlis Perbandaran Kuantan
22	Mr. Goh Seng Chee	Majlis Daerah Kinta Selatan
23	Ms. Jenny Ong	Alam Flora Sdn. Bhd.
24	Tuan Hj. Adnan Ibrahim	Southern Waste Management Sdn. Bhd
25	Mr. Koh Chee Yong	Southern Waste Management Sdn. Bhd
26	Mr. Satoshi Sugimoto	JICA Study Team Member (JST)
27	Ms. Ryoko Watanabe	JST Member
28	Mr. Tan Yee Noon	JST Member
29	Dr. Dennis C.B Saw	MB Technology (M) Sdn Bhd, Consultant to JST on Pilot Project I (JST-MBT)
30	Mr. Peter Y.C.Ho	JST-MBT
31	Mr. Ng Han Kok	JST-MBT
32	Ir. Mazura Bte Mazlan	JST-MBT
33	En. Mohammad Aman Samsurey	JST-MBT
34	Mr. T.Rajavijayan	PE Research Sdn Bhd, Consultant to JST on Pilot Project II - MPSJ

1.0 General

1.1 En. Huszian Husin welcomed all the attendees to the meeting and expressed his apologies on the behalf of the Deputy Secretary General (Operations), Pn. Siti Mohd Noor, for not being able to chair the meeting. En Huszian also thanked Majlis Perbandaran Subang Jaya (MPSJ) for hosting the meeting.

1.2 En. Huszian informed that the purpose of the meeting was for the JICA Study Team (JST) to present their report on the results of the review of MHLG's existing recyclables collection reporting system, and the proposal new format and methods, under the JST Pilot Project I. The data will then be used to estimate the recyclables recovery rate for the LAs. He further informed that part of the scope requires the invited Local Authorities (LAs) to participate in the testing/trials of the proposed new reporting system. As such, the meeting will also be the platform for discussions, obtaining the general consensus for the acceptance of the new format, and to get the LAs' commitment to participate in the PP-I trial exercise.

1.3 The Consultant to JST for the PP-I, MB Technology Sdn Bhd (JST-MBT), presented the slides presentation on the results of the "review of the existing reports submitted to MHLG by the LAs". The briefing included the proposed new recycling collection data gathering methods and new reporting format taking into account of the waste flow. It basically emphasised on the proposed new approach towards recyclable data collection targeting more on the receivers (identified as Level B in waste flow pyramid) rather than the collectors and the generators (identified as Level C & D, respectively). For the time being, the recyclers / traders (Level A) are not included, however, LAs with information about this group of players may include them in the data gathering exercise.

1.4 JST-MBT also informed that the LAs will have to do some recognisance work to identify, register and request the Level B receivers to cooperate and to report the collection statistics. The registration process can also gather the contact information for including in the stakeholders' networking database / directory presently being developed at MHLG by the JST PP-I.

1.5 En. Huszian expressed his appreciation to the participating LAs and hoped that they will all consent to adopt the new format and will cooperate with JST on the trials. MHLG and JST will prepare the documentations and will forward to the LAs soonest, including the softcopy of the proposed recyclables collection data form.

2.0 Issues & Discussions

2.1 The representative from MP Pulau Pinang, Tn. Hj. Zulkifli Zakaria agreed with the proposed methodology but suggested that the "Traders" group, from Level A, should be also be targeted or be shifted to Level B, i.e. making Level B as the Receivers / Traders group. Tn. Haji Zakaria informed that majority of the bigger receivers are also traders, and most of them have already registered with MPPP. He further informed that at present all recyclables collectors must be registered

with the local Police station so that their activities can be monitored. In the future these receivers / traders may be licensed by MPPP to collect and trade in recyclables.

2.2 The representative from MP Kuantan, En. Abd. Rahim Abd. Manaf agreed with Tn. Hj. Zulkifli on the licensing of the receivers / traders. En. Abd Rahim explained that MPK have registered these players under "Sektor Bahan Lusoh" (Scrap Material Sector). The LA has no control on this sector's activities and at present they have been reporting some of the collection quantities to the LA. There is no way for the LA to verify such reports, just accept them in good faith. MPK suggest some licensing mechanism should be put in placed in the future.

2.3 MP Pulau Pinang, Tn. Hj. Zulkifli Zakaria informed that in order to search for and monitor this targeted group of players, a full time team of council personnel is required. At present, MPPP and majority of the LA do not have a dedicated recycling unit, as such, Tn. Haji Zulkifli suggested that MHLG should request the LAs to establish a recycling unit within the LA to oversee the recycling activities.

In reply, En. Huszian informed that he will raise this matter with the senior management of MHLG, and will inform of the decision soonest. JST-MBT informed that in order for MHLG to know more about the present recycling management setup within the LAs, a simple questionnaire will be circulated, in due course, for the LAs to fill in.

2.4 With reference to the disposal at landfill matter, the representative from Southern Waste Management Sdn Bhd, Tn Haji Adnan Ibrahim informed that a number of the landfills do not have weighbridges, and hence the operators may not be able to provide accurate data on the amount of waste disposed at these landfills.

JST-MBT replied that the accuracy of the data is not crucial, the landfill operators should be able to provide some estimations of the quantities based on the number of truck disposing of the waste at the landfills..

2.5 Mr. Sam Khai Khiong, MB Miri, informed that one of the main problem experienced in Miri is with the "cross boundary transfer" whereby recyclables collectors from neighbouring LAs are also collecting in MB Miri but the recyclables are then taken out of Miri. Such collectors do not report to MB Miri on their collection activities. Mr. Goh Seng Chee, MD Kinta Selatan, also informed of similar activities in the Kampar area.

MB Miri further informed that another main issue with the lack of interest in the collection of certain recyclables e.g. glass, is with the high cost of transportation to the recyclers / processors operating in the Peninsular. It is not economically viable to collect such items as there are no buyers / receivers in Sabah.

3.0 A short site visit to the MPSJ Recycling Buy Back Centre at Carrefour Subang Jaya was arranged by MPSJ.

Photographic Records of Meeting & Site Visit

(Note: Face Masks provided by MPSJ due to the bad air quality in the Klang Valley (Hase) on 11 August 2005

Appendix 2

Brief Description on "How to Fill in the Recyclables Collection Data Form" by the LAs

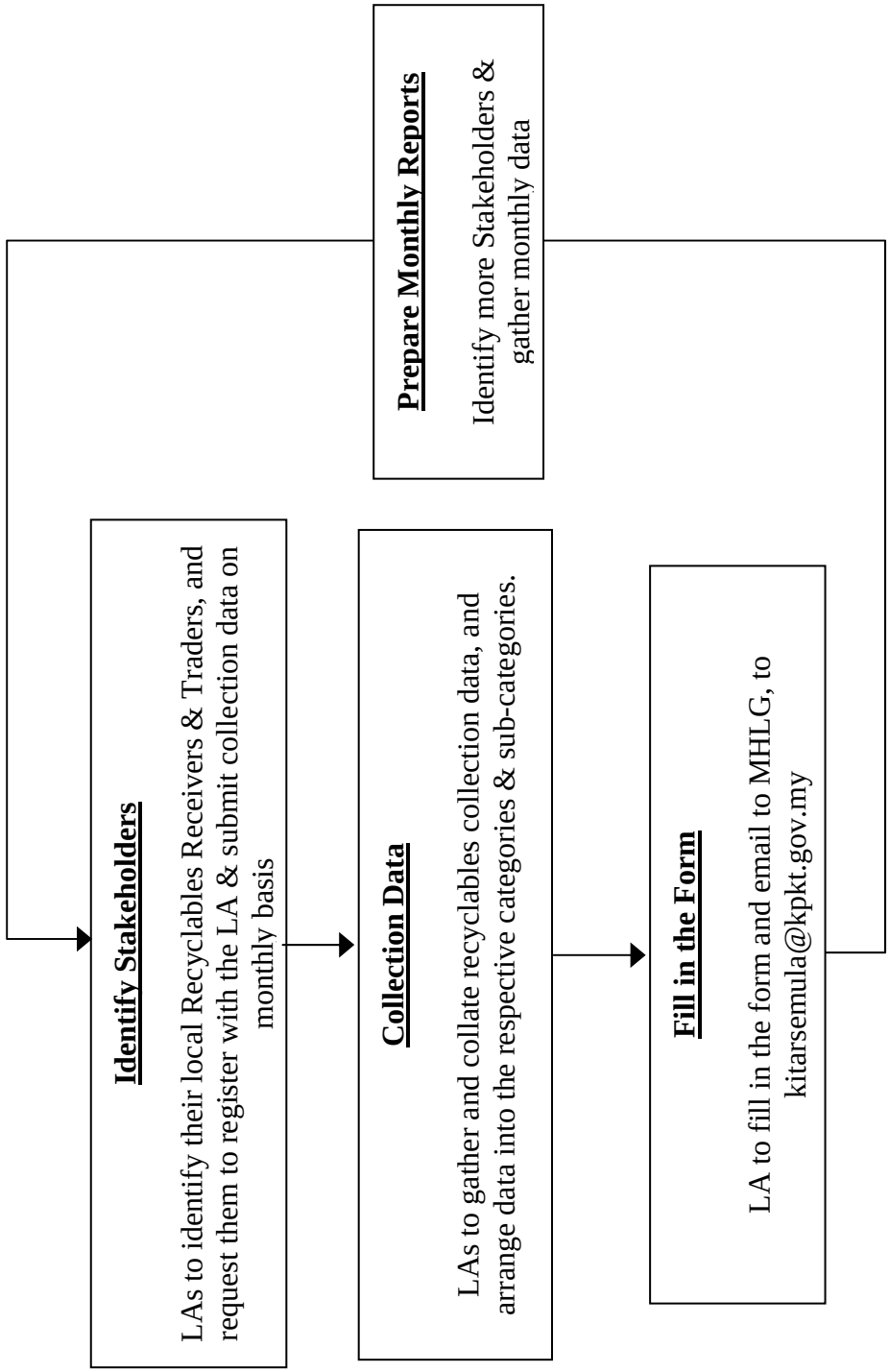


Figure A2.1 Basic Recyclables Data Collection Procedures by LAs

Figure A2.2 Brief Description on "How to Fill in the Recyclables Collection Data Form"

RECYCLABLES COLLECTION DATA FORM

Name of Local Authority (A)

Month (B)	Year		Total MSW Collected		(C)		tonnes/mth
	COLLECTION LOCATIONS (D)						Total (kg)
No	RECYCLABLES (kg)						
1.0	Paper						
1.1	Newspaper (E)						
1.2	Magazines & Books						
1.3	Cardboard & Carton						
1.4	Used White Paper (Office)						
1.5	Mixed Paper						
1.6	Others						
	SUB-TOTAL (1)						
2.0	Glass						
2.1	Clear (Flint)						
2.2	Coloured (Amber / Green)						
2.3	Mixed Glass						
	SUB-TOTAL (2)						
3.0	Plastic						
3.1	PET Bottles						
3.2	Other Plastic Containers						
3.3	Plastic Sheets (bags, straps)						
3.4	Foamed Plastics / Styrofoam						
3.5	Other Plastics						
	SUB-TOTAL (3)						
4.0	Metals						
4.1	Aluminium Cans						
4.2	Ferrous						
4.3	Non-Ferrous Metals						
	SUB-TOTAL (4)						
5.0	Clothing/Textiles						
5.1	Mixed Fabrics						
	SUB-TOTAL (5)						
6.0	Rubber						
6.1	Tyres						
6.2	Other Rubber Materials						
	SUB-TOTAL (6)						
7.0	Others (Please Specify)						
7.1							
7.2							
7.3							
	SUB-TOTAL (7)						
	GRAND TOTAL (1+2+3+4+5+6+7)						

(A) Enter the name of the Local Authority

(B) Enter the month and year for this report

(C) Enter the total amount of Municipal Solid Waste collected for that month, either estimates or actual landfill weighbridge data. Unit in Tonnes / months.

(D) Enter the name of the Drop-Off, Buy-Back, Receiver Centres or Traders under the "Collection Locations" row (i.e. the Level B stakeholders). Use one column per stakeholder, and insert additional columns within this row if necessary

(E) Enter the amount of recyclables collected. Unit in kilogrammes / month

PAPER : If there is no breakdown of the types of paper, then enter the total amount under Item "1.0 Paper".

GLASS : Generally for glass bottles & jars. If there is no breakdown of the types, then enter under Item "2.0 Glass".
- DO NOT INCLUDE Plate / Window Glass or Fluorescent Tubes. However, if it not possible to ascertain the types, then enter the total amount under Item "2.3 Mixed Glass".

PLASTICS : If there is no breakdown of the types of plastics, then enter the total amount under Item "3.0 Plastics".

METALS : Usually "Aluminium Cans" and "Steel Cans" are separated during collection. Enter under Item "4.1 Aluminium Cans" and Item "4.2 Ferrous", respectively. - DO NOT INCLUDE metal slag or old vehicles.

CLOTHING / TEXTILES : If there is no breakdown of the types of fabrics, then enter the total amount under Item "5.0 Clothing / Textiles". (Generally all types of fabric, reusable, damages, soiled, etc)
- If the fabric are mostly clothing scraps, off-cuts, rags, then enter the amount under Item "5.1 Mixed Fabrics".

RUBBER : If tyres are collected, enter the total amount under Item "6.1 Tyres".
- The "Other Rubber Materials" includes rubber boots and mats.
- The details of the amount of "Rubber" collected are for information and reference purposes. If additional details are know, i.e. where they are eventually sent to, for recycling, re-threading or for

Note: The collected amount / quantities should be reported in kilogramme. If the actual weight of the items can not be ascertained then the rough estimations of the weight should entered. DO NOT enter quantities in volume or number-of-items.

Appendix 3

Brief Description on "How to Process and Analyse the Recyclables Collection Data" by MHLG

Download Recyclables Collection Data File from email by LA

(Example as shown in Table A3.1)

↓

Data Analysis
i) Chart Presentation – Individual Month Basis

Stacked Column – To show the amount of recyclables collected by items and sub-categories. It can be used to compare and determine what are the preferred and most commonly collected items

↓

- Open the Excel worksheet file
- Rearrange data table into the main items and their subcategories in *Columnar Form*, as shown in **Table A3.2**.
- Insert the total collected amount for each of the subcategories.
- Convert Data from "kg" to "Tonne" (i.e. divide original values by 1000)

Table A3.1 Example of Data in Excel Worksheet Format

BORANG PENGUMPULAN DATA															
Nama PBT		Majlis Daerah Kinta Selatan, Kampar													
Bulan	Ogos	Tahun	2005	Jum. Kutipan Sisa Pepejal Domestik		1,599.83		tan/bulan							
	Penerima / Sektor Bahan Lusuh	Koperasi Anggota MDKS	TAMAN PERUMAHAN GOPENG	TAMAN PERUMAHAN KAMPAR	PERSATUAN XIM PHOU MOON	INSTITUSI PENDIDIKAN	PASARAYA/ KOMP'GAAN / RESTORAN	TG METAL ENTERPRISE	CHAN PENG FUATT	MAIR GOPENG	LTM TRADING GOPENG	THYE KEONG TRADING M.D.A.	CHONG SWEE KUM	CHONG YOON LAM	Jumlah (kg)
No	**Bahan Kitar Sumula**														
1.0	**Kertas**														
1.1	Surat Khabar														0
1.2	Majalah / Buku														0
1.3	Karton		250		20									50,000	50270
1.4	Kertas Putih (Pejabat)														0
1.5	Kertas Campur	2100	370	292	53	5468	12		20,000						28295
1.6	Lain Lain														0
	Jumlah Kutipan (1)	**2100**	**620**	**292**	**73**	**5468**	**12**	**0**	**20,000**	**0**	**0**	**0**	**0**	**50,000**	**78565**
2.0	**Kaca**														
2.1	Jernih (Flint)														0
2.2	Berwarna														0
2.3	Kaca Campur	2100				270									2370
	Jumlah Kutipan (2)	**2100**	**0**	**0**	**0**	**270**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2370**
3.0	**Plastik**														
3.1	Botol PET			28		111.5						2,000			2139.5
3.2	Bekas Plastik Lain							10,000			300,000	50,000			360000
3.3	Kepingan Plastik														0
3.4	Form Plastik / Styrofoam														0
3.5	Lain Lain	2850	870	53	33	253	23		30,000	200					34282
	Jumlah Kutipan (3)	**2850**	**870**	**81**	**33**	**364.5**	**23**	**10,000**	**30,000**	**200**	**300,000**	**52,000**	**0**	**0**	**396421.5**
4.0	**Logam**														
4.1	Tin Aluminum	215	370	4	3	16.1		10,000	20,000						30608.1
4.2	Besi / Keluli	2000	350	28	6	24.3		103,000	1,000	1,000					107408.3
4.3	Bahan Bukan Besi														0
	Jumlah Kutipan (4)	**2215**	**720**	**32**	**9**	**40.4**	**0**	**113,000**	**21,000**	**1,000**	**0**	**0**	**0**	**0**	**138016.4**
5.0	**Kain**														
5.1	Fabrik Campur				129								12,000		12129
	Jumlah Kutipan (5)	**0**	**0**	**0**	**129**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12000**	**0**	**12129**
6.0	**Getah**														
6.1	Tayar														0
6.2	Lain Lain														0
	Jumlah Kutipan (6)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
7.0	**Lain Lain (Sila Nyatakan)**														
7.1	Kasut				2										2
7.2															
7.3															
	Jumlah Kutipan (7)	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Jumpah Keseluruhan (1+2+3+4+5+6+7)		**9,265**	**2,210**	**405**	**246**	**6,142.9**	**35**	**123,000**	**71,000**	**1,200**	**300,000**	**52,000**	**12,000**	**50,000**	**627,503.90**

Table A3.2 Rearranged Data according to categories in columnar form

(Tonnes)			
	Karton	Kertas Campur	
Kertas	50.27	28.30	
	Kaca Campur		
Kaca	2.37		
	Botol PET	Bekas Pla	Lain Lain
Plastik	2.14	360	34.28
	Tin Alumin	Besi / Keluli	
Logam	30.61	107.41	
	Fabrik Campur		
Kain	12.129		
	Tayar		
Getah	0		
	Kasut		
Lain-lain	0.002		

- Use the Excel Graph Function "Chart Wizard" to generate the "Standard Type – Stacked Column" chart, as shown in **Figure A3.1**.
- Use "Text Box" Function to add "Legends & Descriptions" of each of the subcategories.

Data Analysis
ii) Chart Presentation – Quarterly / Yearly Basis

Stacked Column – To show the amount of recyclables collected through out a period of time, i.e. quarterly or yearly for comparison purpose. This can be used to show the trends in collection and variation in the items collected over a period of time.

- Create new table of collection data for a few consecutive months, example as shown in **Table A3.3**.

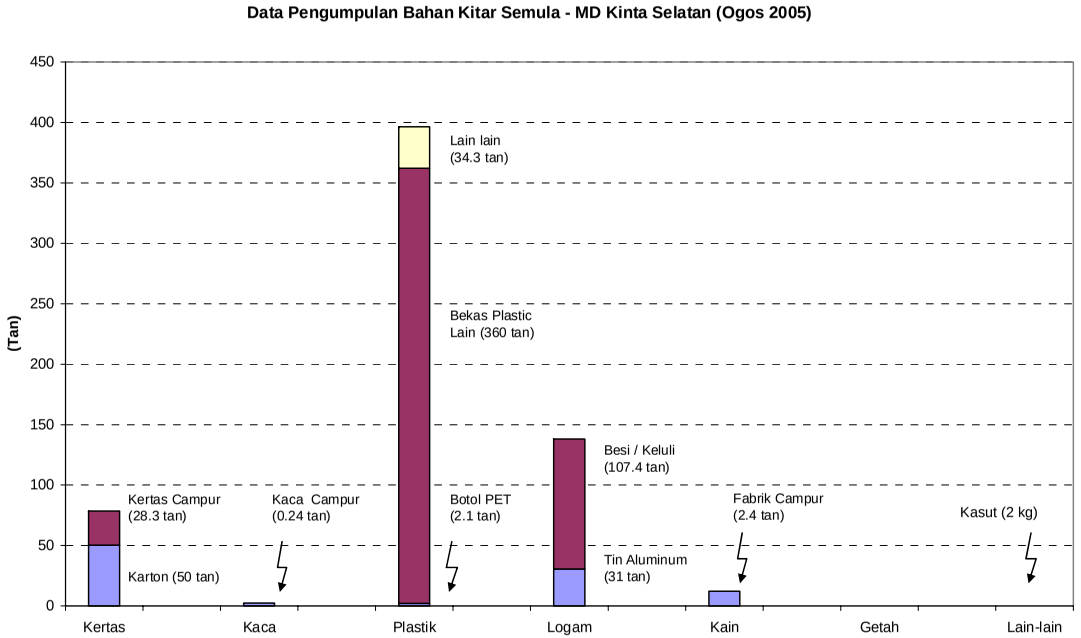


Figure A3.1 Example of Stacked Column chart of collected items and their subcategories

Table A3.3 Example of Monthly Collection Data

Data Pengumpulan Bahan Kitar Semula	Ogos	September	Oktober
Kertas	78.6	54.4	60.3
Kaca	2.4	2	2
Plastik	396.4	558.5	611.4
Logam	138.0	514.3	635.9
Kain	12.1	4.1	10.1

- Use the Excel Graph Function "Chart Wizard" to generate the "Standard Type – Stacked Column" chart, as shown in **Figure A3.2**.
  (Chart shows the collection amounts for the corresponding months)

Data Analysis
iii) Chart Presentation – Recyclables Collection & Solid Waste Collection, Comparison

Clustered Column – To compare values across categories and to show the amount of recyclables collected against the total solid waste collected, for the same month.

- Create new table of the recyclables and solid waste collection data in 2 rows, example as shown in **Table A3.4**.

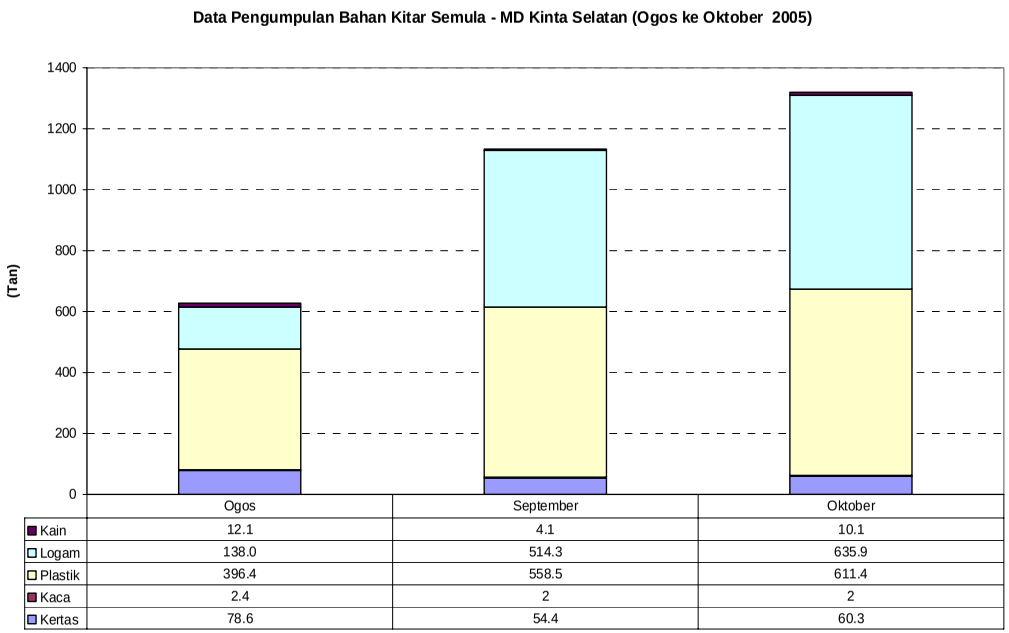
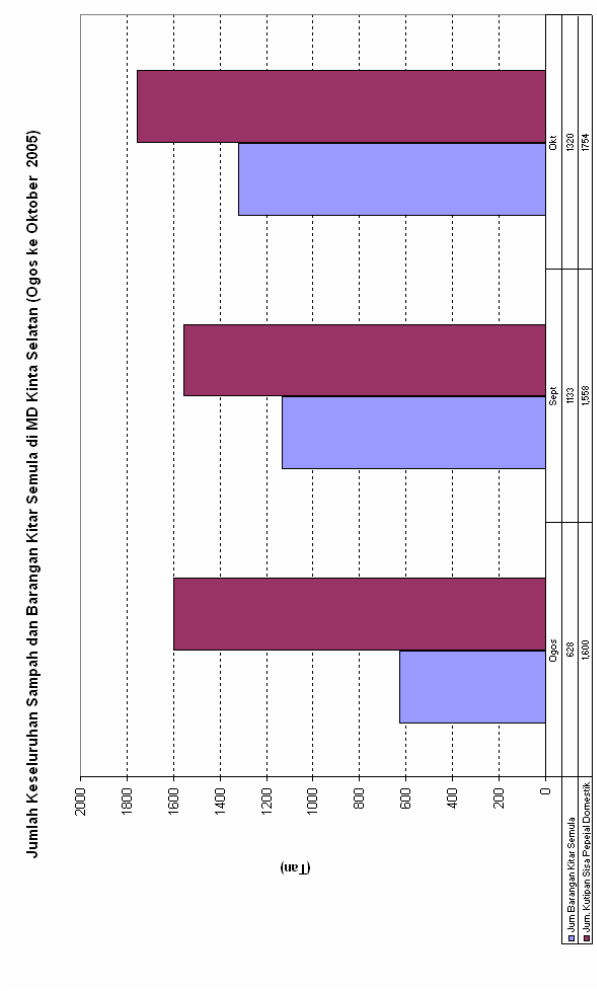


Figure A3.2 Example of Quarterly Collection Data

Table A3.4 Example of Recyclables & Solid Waste Collection Data

	Ogos	Sept	Okt
Jum Barangan Kitar Semula	628	1133	1320
Jum. Kutipan Sisa Pepejal Domestik	1,600	1,558	1754



FigureA3.3 Example of Recyclables & Solid Waste Collection Data, Comparison Chart

- Use the Excel Graph Function "Chart Wizard" to generate the "Standard Type – Clustered Column" chart, as shown in **Figure A3.3**. (Chart shows both the recyclables collection against the solid waste collection for the same month)

Appendix 4

Master Database for the Networking Directory

Company	Address	Poskod	Town	State	Telefon 1	Fax 1	Email	Website	Person In Charge	Brief Info
Hospital Lam Wah Ee	141, Jalan Tan Sri Teh Ewe Lim	11600	Penang	Penang	04-6562234	04-6570940	cheowmc@hlwe.com	http://www.hlwe.com.my	Cheow Mooy Chew	Recyclables collected & amount: 2002(July to December) 21,017.90kg & RM3653.19; 2003 56929.20kg & RM13503.18; 2004 82583.90kg & RM19133.12; TOTAL 160531kg(RM36289.49)
Chemsain Konsultant Sdn Bhd	No. 7, 1st Floor, Jalan USJ 10/1D, UEP Subang Jaya	47620	Subang Jaya	Selangor	03-56370163	03-56370385	sj@chemsain.com		Lina Chan	Provide environmental consultancy, monitoring and testing services. Provide turnkey design and construction of waste water treatment plant
BG Information Services Sdn Bhd	No. 1, Jalan PJS 11/8, Bandar Sunway	46150	Petaling Jaya	Selangor	03-56369999	03-56355740	oymoon.ng@INFO	www.infodata.com.my	Ng Oy Moon	Provide database for 'recycling directory'
PEWOG (Penang Environment Working Group)	33, Medan Tembaga	11600	Penang	Penang	04-6577610	04-6597096	onghtee@streamyx.com	www.pewog.org	Dato' Dr. Ong Hean Tee	1) Community recycling programme, Community composting programme, Hazardous waste management programme, computer recycling programme, E-waste recycling and disposal programme, Healthcare without harm; 2) Training of community leaders, establishment of community recycling teams, community recycling taskforce; 3) PEWOG Recycling News
Community Recycling Taskforce, Pulau Pinang	33, Medan Tembaga	11600	Penang	Penang	04-6577610	04-6597096	onghtee@streamyx.com		Dato' Dr. Ong Hean Tee	Community recycling programme, Community composting programme, Hazardous waste management programme, computer recycling programme, E-waste recycling and disposal programme, Healthcare without harm
Noranda Resources Enterprise	No. 20, Jalan Dataran 3/3, Taman Kempas, Tampoi	81200	Johor Bahru	Johor	07-2387930	07-2361132	norandaresources@yahoo.com/noranda@streamyx.com		Mr. William	We provide total waste management services such as Crushing, Destruction, Segregation, Recycling and disposal for all type of E-wastes, ferrous and non-ferrous metals
Meriahtek (Malaysia) Sdn Bhd	No. 36, Jalan Datuk Sulaiman, Taman Tun Dr. Ismail	60000	Kuala Lumpur	WP	019-6628618		meriahtek@yahoo.com		Mr. Danny Tan	Trading and Recycling of all kind of Metal Scrap and E-Wastes
Sri Aman Recycle Sdn Bhd	No. 67-C, Jalan Mewah 25/63, Taman Sri Muda	40400	Shah Alam	Selangor	03-51213833	03-51210833	s_alam@streamyx.com		Vincent Ng	We provide recycling services to help our customers to achieve their environmental policies
BNW Eramedical	22A, Jalan USJ 18/1, UEP Subang Jaya	47630	Subang Jaya	Selangor	03-80235399	03-80235399			Moo Yoke Fong	Provide the recycling technology/service regarding used tyre
Multibina Suria Enterprise	Lot 6230, Bt. 8 1/2, Kampung Perepat	42200	Kapar	Selangor	019-3650993	03-77294348			S. Sugumaran	We do recycling business in scrap metals. We also setup recycle facility in rubbish dumping area to collect recycle waste materials
Arena Quest Marketing	132, Persiaran Seraya, Palm Grove	41200	Klang	Selangor	03-33721861	03-33748413	wylim5@tm.net.my		Alan W.Y. Lim	Specialised in salvage, recovery and recycle of food products, packaging materials & electronic components
Esin Plastic Trading Sdn Bhd	Kelana Square Suite 3A03, Block A, No. 17, Jalan SS7/26, Taman Kelana Indah	47301	Petaling Jaya	Selangor	03-78800973	03-78063971		http://mail.telseek.com.my:83831	Mr. Chai Soong Hee	We will recycle the plastic and make it become a bullet
Seng Hiap Metal Sdn Bhd	Lot 1297, Batu 7, Jalan Bukit Kemuning, Seksyen 34	40470	Shah Alam	Selangor	03-51223402	03-51222976	senghiapmetal@myjaring.net	http://www.henghiap.com	Fong Chee Chung	Buying and selling of scrap metal, paper and plastic
Masjohan Resources Sdn Bhd	No. 24A, Jalan SS26/6, Taman Mayang Jaya	47301	Petaling Jaya	Selangor	03-78065500	03-78034444	johan8@myresources.com	www.myresources.com	Johan Ariffin Bin Zainal Abidin	We provide R & D services (consultancy) for recyling of energy
Citra Wangi Sdn Bhd	18, Jalan Putra Perdana 7/13, Taman Putra Perdana	47100	Puchong	Selangor	012-2258844	03-83191035	cmheong@yahoo.com		May C.M. Heong	We are collecting all kind of plastic scrap material. For instance, PVC, PP, ABC, PC, PMMA, PC-ABS and so on. We also collecting steel scrap, rubber, computer, copper
GMS Solid Metal Sdn Bhd	Lot 3, Taman Perindustrian Masalam, Batu 17, Jalan Ipoh	48000	Rawang	Selangor	03-60926020	03-60926002	gmspisb@streamyx.com	http://www.gmsmetalrecycling.com	Ganesan A/L Baskaran	Buy waste PVC & T core wires & process and extract copper metal
Alam Flora Sdn Bhd	Jalan SS8/2, Kelana Jaya	47301	Petaling Jaya	Selangor	03-78748433	03-78748615	ernimaria@alamflora.com.my	www.alamflora.com.my	Cik Erni Mariana Binti Mukhtar	Servis kutipan bahan kitar semula di kawasan konsesi terutama di P.Jaya, S.Alam, S.Jaya dan Klang. Di mana servis termasuklah penganjuran program serta taklimat kitar semula
Amanat Networking Sdn Bhd	21, Jln 31/64, Kawasan Industri Kota Kemuning, Seksyen 31	40400	Shah Alam	Selangor	03-51246443	03-51226649	hadi@al-amanat.com	www.al-amanat.com	Abdul Haddis	Recycle of computers and electronics equipment. Trading of scrap computer parts and electronic parts
Wisma Budiman	Wisma Budiman				03-62525811				Mr. Koh	Recycle Paper
My Cartridge Lab	No. 11, Jln SS25/11, Taman Bukit Emas	47301	Petaling Jaya	Selangor	012-2187666		MCLCORP@HOTMAIL.COM		Michael Lim	As a registered member of HP Planet partner. We recycle all types of HP printer cartridges
Yong Heng Chan Trading Co.	No. 3, Jln 33/4A, Elite Industrial Estate, Section 33	40400	Shah Alam	Selangor	03-51211901	03-51211462	limkimtai@yahoo.co.uk		Calvin Lim	Collection centre for waste paper and scrap plastic for recycling
Persatuan Penduduk Taman Bukit Utama	Tropicana Villa Homes, Bukit Antarabangsa, 21 Jalan BU2/6, Taman Bukit Utama, Bu	68000	Ampang	Selangor	019-2420787		pptbu@yahoo.groups.com		Shahrul Hafiz Teh Bin Abdullah	Collection for recycle items
Kuala Selangor Nature Park	Jalan Klinik	45000	Kuala Selangor	Selangor	03-32892294	03-32894311				KSNP collects tin cans, paper and glass bottles which funds the running of the park.
Buy Sell Trade Sdn Bhd	47, Jalan SS15/4	47500	Subang Jaya	Selangor	03-56368675	03-56388675	info@buyselltrade.com.my	www.buyselltrade.com.my	Mohd Jahir Jangi	A unique service provider. We help the public recycle by buying their unwanted goods for cash instead of them throwing it away together with their daily trash. We support our nation's recycling effort by providing an avenue for the public to dispose of their items responsibly and having fun getting instant cash at the same time
GMS Purnaimpex Sdn Bhd	Lot 3, Taman Perindustrian Masalam, Batu 17, Jalan Ipoh	48000	Rawang	Selangor	03-60926020	03-60926002	gmspisb@streamyx.com	http://www.gmsmetalrecycling.com	Dr. C. Baskaran	Recycling Scrap Metal (Non Ferrous)
IMS Print Enterprise	18G, Jalan 18/34, Taman Sri Serdang	43300	Serdang	Selangor	016-6798886				Mr. Victor/Ms. Ann	We collect empty/used toner and ink cartridges for computer printers, old newspaper and magazines and other recycleable product
Nikkhsin Trading	Lot 8, Jalan 51A/223	46100	Petaling Jaya	Selangor	03-79819497				Mr. Nishanth	We are a collection centre for recyclables such as paper, plastic, ferrous and non ferrous metals. We also provide collection services to factories for waste materials such as paper, plastic and metals of all sorts
Pahang Papers & Trading Co.	Lot 476-7, Jalan Bukit Ubi	25200	Kuantan	Pahang	09-5131726	09-5149870			Mr. Lim Seng Jyet	Collection centre for recyclable items such as paper, plastic, metal, etc.
Asria Travel & Tours Sdn Bhd	105A, Tingkat 1, Centre Point, Jalan Haji Ab. Rahman	25000	Kuantan	Pahang	09-51622351	09-5145424	Asriamgt@streamyx.com/asriamgt@tm.net.my		Abdul Mutalib / Halimaton/Noraini	1) Kad keahlian program kitar semula; 2) Perlantikan wakil(agen) atau pusat pengumpulan barang kitar semula
B.I.N.S. Pest Control	G2, Blok D, Medan Warisan Tanah Putih Baru	25100	Kuantan	Pahang	09-5163909	09-5163909			En. Shamsul Annuar B. Samsudin	Menyediakan perkhidmatan membekal tong sampah
K.S.M.P	No. 714, Jalan Medan 30, Taman Medan	46000	Petaling Jaya	Selangor	016-3161108				Kerisnan A/L Munusamy	Surat khabar lama, kotak, tin-tin besi, tilam-tilam lama
Malaysian Plastics Manufacturers Association (MPMA)	37, Jalan 20/14, Paramount Garden	46300	Petaling Jaya	Selangor	03-78763027	03-78768352	info@mpma.org.my	www.mpma.org.my	Mr. Michael Ng	MPMA is involved in creating awareness on the proper usage of plastics. MPMA is also promoting the 3Rs (Reduce, Reuse, Recycle) to the industry and the public through publications, seminars and exhibitions
Alam Flora Sdn Bhd	Level 4, Wisma DRB-Hicom, No. 2, Jalan Usahawan U1/8, Seksyen U1	40150	Shah Alam	Selangor	03-20528180	03-20527956	jennyong@alamflora.com.my	www.alamflora.com.my	Jenny Ong	Alam Flora Sdn Bhd is the largest solid waste management company in Malaysia serving 6.1 million people over a total area of 72388 km2 in Malaysia
KRT Taman Guan Joo Seng	17 Jalan Besi	11600	Penang	Penang	04-6564566	04-6592051	majucepat@hotmail.com		Manasseh Manoharan	Collection of used but clean industrial plastic sheets, wrappers, etc at attractive prices
Rukun Tetangga Island Park	25 Lebuhraya Tembaga	11600	Penang	Penang	04-6582363	04-6597096	onghtee@streamyx.com		Mr. Khoo Teik Thye	Community recycling programme, Hazardous waste management programme, computer recycling programme, E-waste recycling and disposal programme
INDIVIDUALS	82, Jalan Indah, Taman Bukit Indah	14000	Bukit Mertajam	Penang	04-5384060	04-5384060	donmy@tm.net.my		Don & Mylene	Free presentation talks on how to recycle your household waste for a cleaner environment and also raise funds
KB Recycle Centre	80-1740 Jalan Dato Lundang	15200	Kota Bharu	Kelantan	09-7441073	09-7441073	jacklji@hotmail.com		Jack Lim	Give your trash a second chance, we dealing in buying all sorts of waste papers
MK Ribbons	220 B, Jalan Air Hitam	10460	Penang	Penang	04-2297011	04-2294255	mkribbon@tm.net.my		M. Kunasekaran	We refill printer ribbons, typewriter ribbons, inkjets and laser toners
Pinang Mutiara Enterprise	No. 7, Lorong Bukit Penara, MK4, Balik Pulau	11000	Penang	Penang	012-4741288		pinangmutiara@yahoo.com		Chandra Mohan A/L Arunasalam	Collection centre and services
Scrapgold Sdn Bhd	Lot 1225, Section 2, Off Jalan Kampung Gajah/7, Hala Riang, Taman Air Mas	12300	Butterworth	Penang	012-4862167				B.C. Cheah	Experienced in handling metallic and non-metallic scraps for appropriate recycling
Penrecon Sdn Bhd	No. 2, Lengkok Hijau	11600	Penang	Penang	012-4382929	04-2832839	apache1@tm.net.my		C.P.Lim	Recycling of all reusable materials, paper, plastic, metal and wood. Recycling program consultation for corporation on industrial packaging products for reuse to safe cost and the environment
PRM Waja Enterprise	No. 19, Lorong Nangka 1, Taman Desa Damai	14000	Bukit Mertajam	Penang	019-5445812	04-5302307	cashprm@hotmail.com		Raja Mohan	Transporting used drums (plastic and metal)
Cogent Metal Recycling Industries (M) Sdn Bhd	41, Lorong Seruling 3, Kawasan Perindustrian Valdor, Sungai Bakap	14200	Seberang Perai Sel	Penang	04-5824596	04-5826625	info@ewasterecyclers.com	www.ewasterecyclers.com	Eugene Prakash James	Industrial e-waste recycling, industrial waste management consultation and collection
ESH Resource Recovery Sdn Bhd	4988, Lot 527, Mukim 13, Di Sebelah Jalan Kampung Juru, Juru	14000	Bukit Mertajam	Penang	04-5079235	04-5021731	eebm@po.jaring.my; mervintan2000@yahoo.co.uk	www.eshrr.com	Ms. Lim Ah/Mr. Mervin Tan	Waste management (provide waste container / recycle bin at your premises, scheduling or on-call pick-up of waste, pay you for recyclable waste); Personal & confidential document disposal; moving & transportation
Branch	Di Belakang No. 324, Mukim 12, Jalan Bharu, Batu Maung	11960	Bayan Lepas	Penang	04-6265232	04-6262501	eepg@po.jaring.my	www.eshrr.com	Ms. Alice Lim/Mr. Lesley Lim/Mr. Adan	We are comprehensive waste management company providing collections, packing, transportation, consulting for all types of recyclable materials
Wastemin Recycling Sdn Bhd	4 & 6, Lorong Nagasari 20, Taman Nagasari,	13600	Perai	Penang	04-3808711	04-3808710	wasteminrecycling@yahoo.com		Mr. David	We are waste Handling & Disposal Specialist for: Recycle (Plastic scraps,electronic component); Reutilize (Secondhand machinery); Reuse (Drums, Bins); Replace (secondhand air conditioner); reclaim (electronic scraps)
MP Tech Reprocessing Sdn Bhd	Lot 62997, Jalan Belati, Kws. Perindustrian Maju Jaya, Off Jalan Kempas Lama	81300	Johor Bahru	Johor	07-3578789	07-3575789	mp_repro@yahoo.com		Francis Choo	
Victory Recovery Sdn Bhd	Lot 2213 & Lot 2214, Jln PK 11, Krubong Industrial Park	75250	Melaka	Melaka	06-3345336	06-3359854	victory1@streamyx.com	www.victoryrecovery.com	Ir. Joseph Heng	Recycle of scheduled and non-scheduled wastes - DOE licensed for S111, N111, N141, N151, N201, N202, N281, N282
TIJ Consultants Sdn Bhd	22, Jalan NJM 1/3, Taman Nusa Jaya Mas, Nusa Jaya	80800	Skudai	Johor	07-5123908	07-5123909	tij@po.jaring.my/tij@streamyx.com	http://tij.s5.com / http://tijm.ebigchina	Mr. Soh Beng Hock	Provides training and consultancy to ISO 14000 (Environmental Management System) and implement management programmes in Recycling activities
Syarikat Perniagaan Lo Sua Sim Sdn Bhd	Lot 89035, Jalan Langkat 1, Taman Indah, Parit Amer	83000	Batu Pahat	Johor	07-4345801	07-4331523			Mr. Lo Sua Sim	Collection waste material such as paper, plastic, plastic bags, carton, aluminium can, metal and others
Tai Seng Plastic Trading	Lot 4519, Bukit Batu Bakri	84200	Muar	Johor	06-9860755	06-9860757				Collect waste paper, plastics, iron and other recyclable materials
Mutiara Timur Metals	14-E, Jalan Igan, Sg. Merah	96000	Sibu	Sarawak	084-323699	084-323699			Velhm or Velh Murugan	Purchase of all types of aluminium cans, copper wires, scrap tins and metals, lead, steel, and zinc materials
Star Recycle	Lot 2194, Ground Floor, KE??? Commercial Centre	97000	Bintulu	Sarawak	086-337487	086-315404			Lee Swee Hoe	Waste paper - old newspaper, mixed paper, book; Metal - scrap iron, aluminium can, steel; others - bottle (glass), computer monitor
Air Marine Freight Services Sdn Bhd	No. 57, Medan Jaya Commercial Centre, Jalan Tun Hussein Onn	97008	Bintulu	Sarawak	086-338855	086-310800	amfreight@air-marine.com		Pn. Dygku Sarfina Bt. Awgku Arshad /	To provide transportation services to collect the recycling stuff; to provide freight forwarding services to export the recycling stuff
N.S. Recycling Industries Sdn. Bhd.	Lot 717, Batu 51/2, Jalan Kuala Pilah, Paroi	70400	Seremban	N. Sembila	06-6794671	06-6794562	nsri@myjaring.net		Mohamad Bin Hamazah	Pembelian barang-barang lusoh seperti copper, aluminium, brass, stainless steel, timah, besi, kotak, plastik dan segala produk yang boleh dikitar semula
CY Enterprise Sdn Bhd	No. 228 & 229, Jalan Murni 10, Taman Perindustrian Murni	81400	Senai	Johor	07-5988995	07-5983995	cye@chingyun.com.my		Ng Ching Yun / Chen Choon Onn	Servis dalam aktiviti kitar semula seperti bahan plastik, kotak, besi dan lain-lain lagi
Ashlab Technical Services	33, Jln Puteri Indah 2/1, Taman Puteri Indah	83000	Batu Pahat	Johor	07-2359168	07-2325452	v@v.com.my	www.ashmann.com	Teo Wei Kok	R & D services related to ash utilisation in foamed concrete and related composites
Everlantern Trading (Ipoh) Sdn Bhd	SD 1445, Jalan Lahat, Menglembu	31450	Ipoh	Perak	05-2861350	05-2861352				One stop recycling centre for waste paper, metals & plastic - offers collection & consultation services
Universal Vivid Infobiz	B-2-8, Indah Jaya, Jalan Sultan Abdullah	36000	Teluk Intan	Perak	013-5018116		universalenquiry@hotmail.com	www.universal.uni.com	Kumaresvaran	We provide collecting services on all recyclable materials/goods for donation purposes. Donations will be forwarded to various charity organization in Teluk Intan
Eco-Ideal Consulting Sdn Bhd	Lot 378, 1st Floor, Jln. Nanas	93400	Kuching	Sarawak	082-242887	082-244887	econsult@ecoideal.com.my	www.ecoideal.com.my	Soon Hun Yang	We provide consultancy services related to waste recycling - from strategic planning to technological recommendation & assessment, to monitoring & report etc.
Malaysian Nature Society Kelantan Branch	Klinik Leong & Gan, 204, Jln Sultan Yahya Petra	15150	Kota Bharu	Kelantan	09-7442780	09-7442780	shown88@streamyx.com/wmeilin@tm.net.my	www.mns.org.my	Dr. S.C. Leong/Ms. Wong Mei Lin	Accept paper, plastic, glass, aluminium cans for recycling; collection centre-assists schools to start recycling project-provides materials and know-how
RD Papers Sdn Bhd	Lot 1843, Kampung Bukit Kubang Jambu, Jalan Pulau Musang	20500	Kuala Terengganu	Terengganu	09-6222208	09-6249609			Rozita Bt. Darahman	Membeli berbagai kertas terpakai; sedia mengambil dari premis perniagaan, jabatan kerajaan dan swasta
NURSAAS Enterprise	21, Jalan 7, Taman Desa Damai	35500	Bidor	Perak	05-4013201				Abdul Rahman B. Abdul Wahid	Menyediakan perkhidmatan melupus dokumen dari kertas dan melupus barangan dari plastik untuk dikitar semula
South Green Marketing	Gerai Runcit No. 4, Blok B, Pasar Awam, Jalan Besar	31550	Pusing	Perak	016-5959826	05-2883021	voonyau@yahoo.com		Liew Voon Yau	Paper & Aluminium Recycling
Leong Kai Heng	Lot 21820, Jln Besar, Jelapang	30020	Ipoh	Perak					Leong Kai Heng	Hand drawn or crafted logo and poster for recycling purposes
Everlantern Trading (TI) Sdn Bhd	Lot 2883, Jalan Maharaja Lela, Mukim Durian Sebatang	36000	Teluk Intan	Perak	05-6232325	05-6216085			Aw Mee Yoke	Collect waste paper (home to home service; dealing with scrap metal; cleaning service (office/factory)
Ayah Chik Kitar Semula Sdn Bhd	Lot 3519, Kg Bechah Ketiar, Jln Tok Uban	17040	Pasir Mas	Kelantan	012-9383570				Che Abdullah Bin Mohd Nor	Kitar semula alatan terpakai
Indahmanis Label, Sticker & Packaging Sdn Bhd	Lot 4, Mile 51/2, Limbanak Warehouse, Jln Penampang	88200	Kota Kinabalu	Sabah	088-710981	088-723987	iramanis@tm.net.my		Mr. Victor Kou	
Syarikat Balamurugan	No. 355E, Jalan Sungai Besi, Batu 31/2	57100	Kuala Lumpur	WP	03-79824581	03-79814304	syktbala@yahoo.com.sg		Mr. Saravanan, Mr. Chandra	Import, export of ferrous, non-ferrous metals, aluminium, copper and brass scrap.
Multihope Enterprise Sdn Bhd	No. 2, Jln Tuntul Off Batu 5, Jln Turaran, P.O. Box 14265	88848	Kota Kinabalu	Sabah	088-428858	088-422767	mesb@streamyx.com		Eddie Tan & Irene Chong	Dealing with ferrous & non-ferrous metals i.e: Aluminium, brass, copper, scrap iron etc.
Hebat Abadi Sdn Bhd	Lot 24, Jln 4/32A, Batu 61/2, Off Jln Kepong	52000	Kuala Lumpur	WP	03-62589770	03-62589780	skloong@jetcorp.po.my		Mr. Loong Soo Kum (GM)	Collection of recycle items
Shah Latiff Sdn Bhd	No. 5, Persiaran Mewah, Bandar Tun Razak, Cheras	56000	Kuala Lumpur	WP	03-91719007	03-91717549	shalatif@tm.net.my		Puan Rohani Binti Saman	Servis - Mengasingkan dan menjual barang-barang kitar semula
Empties Trading Connections Sdn Bhd	Wisma Disccomp, Lot 135, Section 92-A, 31/2 Miles, Off Jalan Sungai Besi	57100	Kuala Lumpur	WP	03-79876266	03-79816366	empties@disccomp-group.com	www.disccomp-group.com	Mr. Edwin Tang	We buy back used empty ink and toner cartridge
Kin Peun Trading	22, Sri Utara, Batu 7, Jln Ipoh	63100	Kuala Lumpur	WP	03-62582188	03-62580188	kinpeun@hotmail.com.my		Mok Wai Kin	We recycle 5-star hotel furniture and equipment worldwide
UEM Environment Sdn Bhd	15th Floor, Menara 2, Faber Towers, Taman Desa	58100	Kuala Lumpur	WP	03-79664000	03-76252511	csd@kualitialam.com		Alfred Ang	Provider of integrated scheduled waste management services including collection, transportation, treatment, disposal and recycling
Geld Reich Engineering And Contractors	47-2-1, Jalan 6/62D, Medan Putra Business Centre, Menjalara	52200	Kuala Lumpur	WP	012-3856258	03-78474727	grec@tm.net.my		Muhamad Nazeer Hj. Yusof	Surat khabar lama, kertas-kertas lama, kotak, bateri lama dan sebagainya. Besi, aluminium, majalah, kertas komputer, CPU dsb.
Primier 3 Recycling And Collection Centre (Pejabat)	Blok F3 TB1, Taman Melati, Setapak	53100	Kuala Lumpur	WP	012-3243704	03-21647324	johnmalic@m2p.com.my		Mr. Malic	Dealing in computer, tv scraps, buying and selling recycling papers, scrap metal, aluminium, iron, plastics. On call free pick up services etc.
Primier 3 Recycling And Collection Centre (Stor)	No. 368B, Jalan Tun Razak	50400	Kuala Lumpur	WP	013-3406288				Mr.Johnthiva	Dealing in computer, tv scraps, buying and selling recycling papers, scrap metal, aluminium, iron, plastics. On call free pick up services etc.

Kuala Lumpur Paper Mills Sdn Bhd	Lot 1 and 3, Batu 41/2, Jalan Genting Kelang, Setapak	53300	Kuala Lumpur	WP	03-40232298	03-40215372	paperom@tm.net.my		Suzanne C.H.Goh	Provide collection of waste paper, (old document) for disposal
Pertubuhan Kebajikan Sri Jayanti	Sri Lanka Buddhist Temple, Lot 85, Jln Tujuh, Sentul	51000	Kuala Lumpur	WP	03-40419459	03-40410119	slbt@pd.jaring.my	www.srilankabudtem.com	Mr. Jimmy Ong	Newspaper, used papers for charity
Pertubuhan Kebajikan Sri Jayanti	Rumah Metta, No.2, Jln. Perusahaan Satu	53200	Kuala Lumpur	WP	019-3375387	03-40245342				Newspaper, used papers for charity
Kesuma Intan (M) SB	No. 7 - 32A, Jalan 10/23A, Off Jalan Usahawan, Medan Makmur	53201	Kuala Lumpur	WP	03-41435000	03-41425000	info@kesuma-intan.com.my	www.kesuma-intan.com.my	Habeebah Siddeeka	Recycling activities in magazine ; safety & health jointly with Alam Flora S/B - other corporation
Maxguard Security Services Sdn Bhd	No. 21, Jalan Bandar 1, Taman Melawati	53100	Kuala Lumpur	WP	03-41074149	03-41075188	maxguard@tm.net.my		Nurmisuari Bin Zainal Abidin	Consultation of 'Fikir dahulu sebelum buang'
High Cans Corporation Sdn Bhd	No. 17, Jalan 2/108C, Taman Sungai Besi	57100	Kuala Lumpur	WP	03-79808566	03-79842106	sripar@tm.net.my	www.highcans.com.my	Sri Parrenthaman / Manoj Kumar	We recycle all types of metals. We are registered with MOF, Tenaga Nasional and KTM Berhad. We deal with ferrous and non-ferrous metals.
Malaysian Nature Society	JKR 641, Jalan Kelantan, Bukit Persekutuan	50480	Kuala Lumpur	WP	03-22879422	03-22878773	mns@mns.org.my	www.mns.org.my		MNS collects only drink cans and paper. Funds from recycling is channeled towards general funds for conservation work.
Nature Education Centre - FRIM-MNS-SHELL	FRIM, Kepong	52109	Kuala Lumpur	WP	03-62771703					NEC collects tin cans, glass bottles and paper which funds the running of the centre
Eco Kid Adventure	P.O. Box 164, Gombak	53800	Kuala Lumpur	WP	019-3689375		jinggoberr@yahoo.com	www.geocities.com/ecokid97/basec	Harun B. Haji Abu Bakar	Menawarkan program berbentuk ceramah kesedaran mengenai kepentingan kitar semula dan demonstrasi kitar semula kertas untuk sekolah-sekolah dan IPT di kawasan Lembah Klang
Malaysian Newsprint Industries Sdn Bhd	Level 7, Wisma Hone Leong, 18 Jalan Perak	50450	Kuala Lumpur	WP	03-21799898	03-21636363	mnirpd@tm.net.my	www.newsprint.com.my	Catherine Chu & B.H. Tan	Running recycling program for schools, charity body and community. We provided logistic and the return is higher than the market price
Logomas Packaging Sdn Bhd	Lot 887, Jalan Subang 9, Taman Perindustrian Subang	47500	Subang Jaya	Selangor	03-80248990	03-80247998	enquiries@logomas.com	www.logomas.com	FD Sim, SB Foo	We are able to supply biodegradable food packaging products made from flour. Currently, our foam PS products are totally recyclable
Servpro (M) Sdn Bhd	28, Jalan Horley, Off Jalan Imbi	55100	Kuala Lumpur	WP	03-21452882	03-21421099	ronnieyap@servpro.com.my	http://www.servpro.com.my	Ronnie Yap	Specialised in product waste management and balers press
Unit Perundingan Universiti Malaya	Tingkat 2, Blok D, Kompleks Perdana Siswa, Universiti Malaya	50603	Kuala Lumpur	WP	03-79587066	03-79587061	ketua_up_ippp@um.edu.my	www.um.edu.my/www.ippp.um.edu.	Maznolita Binti Hamdan	Teknologi Pemulihan Sumber
Boarding Engineering Sdn Bhd	201-2, Jalan Sarjana, Taman Connaught, Cheras	56000	Kuala Lumpur	WP	03-91329230	03-91308416	enquiries@be.com.my	www.be.com.my	Mr. Casey The	Scrap baler, compactor, shear electromagnet lifter, magnet sweeper
Perniagaan See How See	187-A, Bukit Pelanduk	71960	Seremban	N. Sembila	019-6218175	06-6673124			See How See	I want second hand gunny sacks to be recycled as carpets, papers, clothes and others
Chamco, Inc	7554, Tmn Sri Kelemak	78000	Alor Gajah	Melaka	012-7660377	06-5562288	fang@chamco.net	www.chamco.net	HK Fang	Garbage Electricity
Koay Kah Seng Enterprise Sdn Bhd	2412, MK 1, Jalan Perusahaan, Prai Industrial Complex	13600	Prai	Penang	04-3907440	04-3996561	info@kks.com.my	www.kks.com.my	Koay Chiew Guan	Extinguishing materials using Bio HiTech System
CST Engineering Sdn Bhd	No. 8, Jalan Pendidik U1/31, Hicom-Glenmarie Industrial Park	40000	Shah Alam	Selangor	03-55695514	03-55695529	cstmal@cst.com.my	www.cst.com.my	Mr. Lars Hjorth	Waste water recycling and reuse system
E-Pay (M) Sdn Bhd	16-18, Jalan PJS 11/28A, Bandar Sunway	46150	Petaling Jaya	Selangor	03-56322488	03-56375755	elley@e-pay.com.my	www.e-pay.com.my	Elley Chow Pek Mei	E-pay currently distributing prepaid reload air time for all network operators. Prepaid air time pin dispense via a terminal and pin printed out via a thermal print voucher which is environmental friendly unlike the tradition physical reload coupon
Enerwaste Technology Sdn Bhd	24, Jalan 14/54	46100	Petaling Jaya	Selangor	03-78773737	03-78767080	wilburwee@hotmail.com		Wilbur Wee - ASEAN rep.	Waste material sorter plant; waste to fuel plant; waste to energy plant and automatic composting plant
Ban Hock Guan Plastic Ind Sdn Bhd	9,7 Jalan Budi 6, Tmn Wawasan Perindustrian	83000	Batu Pahat	Johor	07-4288511	07-4288511			Mr. Lim Kee Guan	Recycle plastic materials
Excelbond Metal Recycling Industries Sdn Bhd	Plo 569, Jalan Keluli, Kawasan Perindustrian Pasir Gudang	81700	Johor Bahru	Johor	07-2511168	07-2513188	excbond@po.jaring.my	www.excbond.com.my	Mr. Lim Kim Chuan	Recycling of solder dross and brass dross.
Asia Community Service	53, Jalan Baru, MK 1, Pulau Betong	11020	Balik Pulau	Penang	04-8665349	04-6597852	acspen@po.jaring.my	www.asiacommunityservice.org	Hasra Othman	Activities by disabled people in; 1) Collection of items for recycling, 2) Recycling used oil into soap, 3) Handmade paper
Jusprint (Penang) Sdn Bhd	No. 88, Wisma Sebarang, Jalan Seang Tek	10400	Penang	Penang	04-2292688	04-2286399	justprintpg@jusprint.com		Mr. Deloke Charas	Remanufactured and recycler of laser printer toner cartridges as well as inkjet cartridges. Collector of empty or used laser toner cartridges and inkjet cartridges
Preference Trading Sdn Bhd	Plot 79A, Lorong Perindustrian Bukit Minyak, Kaw. Per. Bkt. Minyak	14100	Penang	Penang	04-5086027	04-5076027	prefer@tm.net.my	www.preference.com.my	Victor Chai	
VK Recycle Sdn Bhd	257, Off Jalan Tan Sri Manikavasagam	70200	Seremban	N. Sembila	06-7646412	06-7672806	akelen7@hotmail.com/vkrsb@yahoo.com		S. Akelen	Recycling of soya waste, brew and others. Market return for products
Syarikat Preserve Green	Lot 155, Jalan Burung Lilin, Off Arang Road	93250	Kuching	Sarawak	082-577913	082-577913			Albert Oon	
Noble Global Sdn Bhd	Lot 1173, Sungai Tapang, Off Airport Road	93251	Kuching	Sarawak	082-577913	082-577913			Eddie Oon	
CK Dynamic Resources (1432344-M)	No. 7, Kaw. Industri MARA, Bukit Kor,	21600	Marang	Terengganu	09-6124220	09-6183624			Mohd Fakhri Md Mahayuddin/Mohd Ka	Membeli bahan-bahan plastik dan menghasilkan produk hancur (bahan mentah) terutama untuk LDPE (injection grade) dan HDPE (Blow Grade)
Polyco Plastics	Lot 24455, Bt 9, Jalan Chemor	31200	Chemor	Perak	05-2012118	05-2012118	tcchai@pc.jaring.my		Tan Chin Chai (John)	Major in recycling of post-consumer scrap plastic
Bintang Makmur Enterprise	No. 36, Plot Industrian, Kawasan Perindustrian	32040	Sri Manjung	Perak	05-6726832	05-6834082			Murugan A/L Padawellani	Recycling plastic, paper, glass, leather, aluminium and metal. Our companies scope - buying, selling and processing
Syabas Synergy Sdn Bhd	Lot 6325, Desa Lutong Industries Estate, Lutong Baru, Lutong	98100	Miri	Sarawak	085-420327	085-420329	syabas6333@yahoo.com		Mr. Lau Khia Ning	Service - recycle of all the plastic wastage, environmental friendly; Product- produce pellets/resins
Major Plastic Industries Sdn Bhd	Lot 1031, Sec. 66, Jln. Kisar, Bintawa Industrial Estate	93450	Kuching	Sarawak	082-332454	082-331276	majplas@tm.net.my		Mr. Chian Lik Chiat	Service - recycle of paper and plastic; product - recycled plastic, resin & baled papers
PJS Environmental Services Sdn Bhd (355136-M)	Lot 5.4.8, Tingkat 4, Wisma Prima Peninsular, No. 2 Jalan Setiawangsa 11A, Taman	54200	Kuala Lumpur	WP	03-42535520	03-42535750	pjses@tm.net.my	www.pjses.com	En. Mohd Ali Bin Mohd Saad/En. Norz	1) Menguruskan program kitar semula secara komprehensif merangkumi program kesedaran dan pendidikan, kutipan dan penyediaan infrastruktur; 2) Pembekalan tong-tong kitar semula
NKB Muhibbah Sdn Bhd (581807 M)	No. 23 & 25, Jalan 3/34A, Kepong Entrepreneurs Park, Bt. 7, Jln. Kepong	52100	Kuala Lumpur	WP	03-62502659	03-62576632	muhibbah@streamyx.com		Haji Abdul Halim Bin Shaari; En. Wan	Services on collecting all types of recycle items, plastic, paper, tin etc.; Supply all types of plastic as raw materials
IT city Computer	46M, Jalan Wangsa 2/5, Taman Wangsa Permai, Kepong	52101	Kuala Lumpur	WP	012-3662818	03-62729718	info@prolaser.com.my	www.prolaser.com.my	Mr. Ken Gan	Buy back empty or used cartridges; Supplies reconditioned laser toner cartridges
Pandai Recycle Trading	PT 27, Kg. Tiong Pendek	15100	Kota Bharu	Kelantan	012-4585325				Mohd Fozi Bin Mat Yiatin	Menerima TV lama @ komputer dan alatan elektrik dan mengasingkan kepada bahagian-bahagian kecil
ABM Metal Sdn Bhd	Lot PT 32332, Jalan Puchong Batu 13 1/2	47000	Puchong	Selangor	03-80602387	03-80624027	abmmetal@streamyx.com	www.abmetal.com	R. Sathivelu	All kinds of ferrous and non-ferrous metals. Transportation services.
Keep Plastics Sdn Bhd	226, Block A, Damansara Intan, Jalan SS 20/27	47400	Petaling Jaya	Selangor	03-77275425	03-77275425	chong@tm.net.my		Mr. Chong	We import, buy local, HDPE scraps and LDPE film and process into pellets for sale to moulders/factories
Nova Plastics Industries Sdn Bhd	No. 39, Jalan Seruling 57, Taman Klang Jaya	41200	Klang	Selangor	03-33237810	03-33238009	novapl@tm.net.my		Loh Choon Lee	To recycling all types of thermo plastic
Karich Sdn Bhd	No. 6, Jalan Gitar 33/3, Elite Industrial Estate, Off Jln Bukit Kemuning	40350	Shah Alam	Selangor	03-51220228	03-51227223	may@karich.com.my	www.karich.com.my	Ms. May Teo	Specialist in plastic waste collection; Repelletizing all types of plastic materials
Aldwich Berhad	No. 5, Jalan BK 3/2, Bandar Kinrara	47100	Puchong	Selangor	03-80767843	03-80767829	sales@aldwich.com	www.aldwich.com	Encik Hasleen Bin Isnin	Aldwich is licensed by the Dept. of Environment to own an operate and integrated scheduled wastes recycling and recovery facility in Kemaman, Terengganu. It has state of the art technology which is Malaysia owned. The products are Metal Oxide, such as Zinnex, Cuprex, Niclex, Plataclex, etc and industrial fuel i.e. diesel, naphta, etc.
Silver Coral Sdn Bhd	9, Jalan Perigi Nanas 8/1, Pulau Indah Industrial Park, Pulau Indah	42920	Port Klang	Selangor	03-31014288	03-31014688	info@silvercoralsb.com	www.silvercoralsb.com	Loh Soon Yew; Quah Boon Hoo	Product : Pet & HDPE Plastic Flakes; Service : Provide services in processing plastic flakes
MPC Plastic Recycle Sdn Bhd	174-A, Jalan Batu Unjur 1, Taman bayu Perdana	41200	Klang	Selangor	03-33234737	03-33234737	mpc_plastic@hotmail.com		Keertegan	We buy and sell crashed scrap material like HDPE, PVC, Arcylic, Nylon, Idon white, ABS and SPS
Zelda Industry Sdn Bhd	Lot 825, Demak Laut Industrial Park	93050	Kuching	Sarawak	019-2292222	082-432091	johan8@myresources.com		Johan Ariffin Bin Zainal Abidin	Help companies to reduce electricity and water cost; R & D services for recycling energy; solar energy
Savearth Recycle	12, Jalan PBS 14/8, Taman Perindustrian	43300	Seri Kembangan	Selangor	03-89480228	03-89486226	savearth@streamyx.com/gmsteel@streamyx.com		Jason Chong	Plastic wastes, post industries - mainly PET/HDPE/LDPE/ABS/PP - plastic waste and scrap
Tex Cycle Sdn Bhd	No. 8, Jalan TPK 2/3, Taman Perindustrian Kinrara	47100	Puchong	Selangor	03-80763816	03-80763817	texcycle@po.jaring.my		Mr. Michael Ho	Specialises in recycling & recovery of scheduled waste. We collect used materials directly from companies in the electronics, engineering, automobile, oil & gas, printing & other manufacturing industries, all of which use rags, wipes and gloves that are soiled with grease, inks, solvents etc. We collect S251, N023, N271 & S261
Sani @ Ghani Ibrahim	P.O. Box 218	41720	Klang	Selangor	03-33421017					Kitar semula bahan bangunan; kerangka kapal
Citiraya Technology Sdn Bhd	No. 1, Jln TTC 32, Tmn Technology Cheng	75250	Melaka	Melaka	06-3353886	06-3356886	info@citiraya.com.my/jasonyee@citiraya.com.my	www.citiraya.com.my	Mr. Jason Yee	One stop recycling services and recovery for all types of electronics waste, ferrous & non-ferrous metal (i.e. copper, nickel etc.) Innovative state-of-the-art technologies for waste recovery; waste management and consultancy services; security system & intellectual property protection
Raja Dzulkifli Tun Uda & Associates Sdn Bhd	No. 17A, Jalan SS26/8, Taman Mayang Jaya	47301	Petaling Jaya	Selangor	03-78043373	03-78055379	rajadzul@yahoo.au		Raja Dato' Seri Ir Dzulkifli Raja Tun Uc	Provision of engineering consultancy services on integrated mechanical-biological treatment of municipal solid waste based on recycling and reuse principle
E-Waste Recycling Ind. (M) S/B	Lot 7678, Lorong IKS Bkt Minyak 1, Taman IKS Bukit Minyak	14000	Seberang Perai Ter	Penang	04-5087573	04-5085573	steven@e-waste.com.my		Steven Choy/KW Ng	Trading and Recycling of precious metals, non-ferrous metals, plastic waste, electronics and semiconductor scraps.
Laxim Enterprise	5835, MK12, Jalan Mahkamah, DBD	11900	Bayan Lepas	Penang	04-6425317	04-6421685	p-maran@tm.net.my		Mr. V. Saminatahn PJK	Mainly clearing recycling product from industrial site, unwanted material, compound, and all kind of recycling item. Service such as for charity also available
V.M. Scraps And Metals Enterprise	No. 6, Jalan Industri Beringin, Taman Perindustrian Beringin, Juru	14000	Bukit Mertajam	Penang	04-5071525	04-5076525	p-maran@tm.net.my		Mr. V. Saminatahn PJK/P. Maran	Mainly clearing recycling product from industrial site, unwanted material, compound, and all kind of recycling item. Service such as for charity also available
Dupont (M) Sdn Bhd	6th Floor, Bangunan Samudra, No. 1, Jalan Kontraktor U1/14, Seksyen U1, Hicom G	40150	Shah Alam	Selangor	03-55693006	03-55692994	info.malaysia@mys.dupont.com	http://malaysia.dupont.com	Lum Ken Wve	Recycle used tyres with us and safe the environment
Green World Recycling Industries	No. 115-2 (2nd Floor), Pusat Perniagaan NBC, Jalan Meru	41050	Klang	Selangor	03-33440998	03-33420998	info@greenworld.com.my	www.greenworld.com.my	Mr. Alex Ng	One stop industrial waste management services; recycling in all types of scrap electronics and metals; marketing agents for DOE licensed recycler; destruction and crushing services for intellecture property right products; precious metal recovery specialist
Perusahaan Chew Hur Sdn Bhd	Lot 1475, Jalan Tok Muda, Batu 12 1/2, Jalan Kapar	42200	Klang	Selangor	03-32503311	03-32503366	chewhur@tm.net.my	chewhur.com.my	Madam Anne A.L. Wong	Provided manufacturing for society, crushing, washing the used consumer waste plastic and convert to recycled waste resin
K & G Industrial Recycling & Trading	No. 88, Jalan 10/34B, Sri Edaran Light Industrial Park, Off Jalan Kepong	52100	Kuala Lumpur	WP	019-3275703	03-62508060	silvertrade63@hotmail.com		Khoo Chee Chong	We buy old x-ray films, printing films and litho films for recycling purposes
Positive Recycle Industries	10-A, Batu 12 1/2, Jalan Kelang/Puchong	47100	Puchong	Selangor	03-80684439	03-80684439			Patrick K.C. Goh	We undertake to collect recyclable plastic, papers & metal. We also collect used furnitures and electrical items. The recyclables will be segregated, compacted or crushed
IRM Industries Sdn Bhd	37, Block H, Jalan Batu Maung	11960	Bayan Lepas	Penang	04-6262001	04-6261007	ehgoh@irm.com.my	www.irm.com.my	Mr. EH Goh/Mr. Richard Goh	Reclamation & recycling of precious metals, computer scraps, non-ferrous metals, used plastic material & electrical components scrap. Services & dealings : Total waste management, industrial waste disposal & importer exporter of non-ferrous metals
Green Power Recycle Enterprise	No. 623-5A, Jalan Ungku Mohd Salleh, Kluang Baru	86000	Kluang	Johor	07-7771144	07-7764330	greenpower_ent@yahoo.com		Ashoka Ng/Wong Kim Tee	
Persina Enterprise	24, Bandar Darulaman, Tanah Merah	06000	Jitra	Kedah	04-9179804	04-7311272	pacheappan@yahoo.com		W.Pacheappan	Recycling of boxes, paper, plastic, scrap metal, glass etc.; composting - kitchen waste/garden waste
HongYik Plastics (M) Sdn Bhd	Lot 7785, Jalan Batu Tiga, Bukit Cherakah (Kg. Baru Subang)	40150	Shah Alam	Selangor	03-78591385	03-78591379	enquiry@hongyik.com	http://www.hongyik.com	Mr. L.C.Soh/Mr. K.M.Hong	PVC Corner Bead
Beijing Cap Corp Sdn Bhd	63-3, Jln 2/3A, Pusat Bandar Utara	68100	Selayang	Selangor	019-3864830	03-61351303	beijingcap@tm.net.my		En. Ali Bin Mohd Isa/En. Ahmad Zahar	Mengitar semula besi, kertas, kadbod, tin dll; mempunyai kepakaran melupus kertas-kertas rahsia kerajaan, peperiksaan dan kertas mahkamah dan dokumen tidak terpakai
Syazline Enterprise	52, Jalan Marmar Satu, Taman Melewar	68100	Batu Caves	Selangor	03-61892480	03-61870360	kulllat@yahoo.com		Syazline Zulkapli/Md Isnafleenor	Membekal produk-produk kraftangan yg diperbuat daripada kertas (kitar semula) seperti bakul, pasu, replika binatang (sotong, ketam dll), bunga, frame gambar dll berasaskan kraftangan
Tetra Pak (M) Sdn Bhd	Level 12, Uptown 2, Damansara Uptown	47400	Petaling Jaya	Selangor	03-77291199	03-77102318	tazree.mohamed@tetrapak.com	www.tetrapak.com	Mohamed Tazree	Tetrapak beverage carton can be recycled to produce variety range of products
Three R Trading / Screening & Crushing Systems Ltd., C	13, Jalan PJS 7/17, Bandar Sunway	46150	Petaling Jaya	Selangor	03-56366820	03-56366820	kohtc3@streamyx.com/kohtc3@yahoo.com.sg	www.rippervsc.com	T C Koh	Machine to shred wood / tyre / metal drum and other waste products
Strategic Alliance Resources (AP) Sdn Bhd	19-B, Jalan USJ 10/1A	47620	Subang Jaya	Selangor	03-56332585	03-56346855	starmsia@streamyx.com		Mr. CL Yang	Activated carbon, made from the Palm Shell waste. The product (Organic Deodorizer) have the superior absortive capability. For commercial application.
Bagan Villa Resort	Pantai Bagan Lalang, Sg.Pelek	43950	Sepang	Selangor	03-31412200	03-31412200			Ahmad Talai	Beds, pillows, blankets, mattress, cockeries, plastics, aluminium; manure - faesces (horses)
Rotocraft Industries (M) Sdn Bhd	11B, Jalan Saujana Indah 4, Taman Industri Saujana Indah, U2	40150	Shah Alam	Selangor	03-78452415	03-78452414	rims84@tm.net.my	www.rotocraft.com.my	En. Azman bin Ahmad	Recycle Bin 240 & 360 litre c/w signage & platform; recycle bin 660 (for collection centre); recycle bin 'rabbit' (specially for kindergarten)
Everlast Equipment Supplies	17, Jalan Wawasan 4/6, Bandar Baru Ampang	68000	Ampang	Selangor	03-42706212	03-42707212	eesbl@tm.net.my		Mr. Y.S. Chong	Granutech Shredders from U.S.A. - Shredding of bulk wastes, green wastes, tyres, etc.; Powerscreen Shredders from U.K. - Shredding and screening of domestic wastes, green wastes, screening of compost and topsoil
SKP Metal Trading	No. 25A, Kg. Makau, Bt 14 1/2, Hulu Langat	43200	Kajang	Selangor	019-3768220		skp metal@bluehyppo.com	http://www.skpmetal.enetmyne.com	Thanabalan s/o Murugason	Dealing with ferrous & non-ferrous metal, plastic, steel, batteries, wires, can, paper box. We are also doing mobile recycling.
Care For Earth	5, Jln Lada Hitam Satu, 16/12A	40200	Shah Alam	Selangor	03-55118687	03-55118681	business@care-for-earth.com	www.care-for-earth-.com		Expert in disposing old machineries, generators and many more
Laser Explorer (M) Sdn Bhd	No. 40, Jalan TPP 5/6, Taman Perindustrian Puchong, Seksyen 5	47100	Puchong	Selangor	03-80684188	03-80614188	laserexplorer@po.jaring.my	www.laserexplorer.com	Darrel Tan Chee wei	We are a Malaysian company producing biodgradable products using the US technology
Nishin Packaging Ent.	51, Jln BJ 6, Tmn. Perindustrian Belmas Johan	48000	Rawang	Selangor	03-60937801	03-60937804	wyh1112@hotmail.com	sunreliance.com	Wong Ying Ho	We do collecting of empty toner/ink cartridges for laserjet and inkjet printer for all the model. We also a manufacturer of recycle and compatible toner cartridges for laserjet printer
										We are plastic recycling especially on PE

										Mengedar 'remanufactured toner' kartrij untuk pencetak laserjet jenama HP, Canon, Brother, Samsung, Lexmark, Panasonic,
Anzias Sdn Bhd	54, Jalan Ibrahim	80000	Johor Bahru	Johor	07-2247772	07-2247882	anzias@myjaring.net		Norzaman Bin Ali Affandi	Epson dll.
Long Heng Plastic Industries	8-10, Jln. Mutiara Emas 5/27, Taman Mount Austin	81100	Johor Bahru	Johor	07-3534901	07-3524904	longheng10@yahoo.com		Ooi Ching Chun & Chin Yoke Wah	Recycling of plastic parts such as PS, HIPS; reproduce plastic cutlery and plastic resin
Ta Wu Steel Enterprise S/B	Lot 204 & 205, Kawasan Perindustrian Bukit Rambai, Phase IVB	75250	Melaka	Melaka	06-3515980	06-3515677	twsteel@tm.net.my/yoonchie@hotmail.com		YapYoon Chie & Ng Tai San	Supply annealed wire to factory whom involve in collecting waste paper, plastic
										Our company mainly develops metal and non-metal reclaiming machinery, hydraulic press, rubbish processing machinery
Solid Recycle Sdn Bhd (525359-D)	No. 2, Lintang Riang, Taman Riang,	12300	Butterworth	Penang	04-3317466	04-3318586	solidenterprise@hotmail.com		Lee Kim Tong	covering hundred of types as 5 kinds series including shearing, baling, briquetting, stripping and shredding
Sigmaplus Recycling Sdn Bhd	No. 26, Jalan IM 14/6, Kawasan Perindustrian Indera Mahkota	25000	Indera Mahkota	Pahang	09-5131728	09-5149870			Mr. Lee Beng Kheng	To produce cruched plastic material and supply to plastic recycling factory for pelletized
										We collect and sell usable household products like clothing, furniture, computer, electrical items, kitchen wares, posters,
The Salvation Army - Family Thrift Stores	No. 9, Jalan TPP 1/3, Tmn. Industri Puchong, Batu 12, Jln. Puchong	47100	Puchong	Selangor	03-80614757	03-80618235	rsj@tm.net.my	www.salvationarmy.org.my	Mrs. WY Lim	books, toys
3S Paper Products Sdn Bhd	5, 7 & 9 Jalan TPJ 5, Taman Perindustrian Jaya	47200	Subang	Selangor	03-78476378	03-78476358	swchik@pc.jaring.my	www.obon.com.my	Alan Soh	Pencil made from newspaper
Theen Seng Paper Manufacturing	32nd Miles, Jln Ipoh, Rasa	44200	Hulu Selangor	Selangor	03-60573101	03-60573250	tspmsb@tm.net.my	http://rsp.asiaaep.com	Mr. Lai Tak Kuan; Mr. Asokumar	Waste paper collection and recycling centre
SG Green Resource S/B	PLO 89, Jalan Cyber 7, Kawasan Perindustrian Senai III	81400	Senai	Johor	07-5999298	07-5999759	sales@sggreen.com.my	http://sggreen.com.my	Sherry Mok Pek Sil	Trading of plastic scrap & obsolete materials; manufacturer of recycle plastic; repelletizing of ABS, HIPS, PP and PE material
WY Engineering Plastics Sdn Bhd	31, Jalan Idaman 1/6, Desa Idaman Senai Industrial Estate	81401	Senai	Johor	07-5987916	07-5987917	yongfc@tm.net.my		Mr. Yong Fat Chon	Recycled all types of thermoplastics
Moldex Plastic Recycling Sdn Bhd	No. 23 & 25, Jalan Mahir 4, Taman Perindustrian Cemerlang	81800	Ulu Tiram	Johor	07-8637172	07-8636172	moldex@pd.jaring.my		Ms. Looi Lai Yee	Plastic repelletising, plastic compounding, plastic recycling, plastic trading
ANL Compost Sdn Bhd	117-E (Lot 135) 1st Floor, Jalan Ban Hock	93100	Kuching	Sarawak	082-422320	082-245755	nsyhsmy@tm.net.my		Ms. Sim Chin Thiam & Mr. Kenny Sia	Processing of green waste into environmental friendly and quality 100% natural compost
										Produk seni taman, simen ferro yang menggunakan besi terpakai, kertas terpakai, plastik terpakai, dll sebagai bahan
Airy Construction	242, Persiaran TSR-5, Taman Sri Rembau, Fasa 3	71300	Rembau	N. Sembilan	012-6523812				Mohd Azhari Ismail	kerangka
										"Tiang lampu". Berasaskan paip PVC yang terbuang. Digubah dalam bentuk simen ferro menampakkan seperti batang kayu
BELUM DIDAFTARKAN	1808, Tmn. Samudera	32040	Sri Manjung	Perak	012-5347603				Anhar Zubir Bin Abd. Rashid	sebatang. Menjadi tiang lampu untuk halaman rumah, dlm. rumah, pejabat dan tempat-tempat riadah
Shye Guan Enterprise Sdn Bhd	No. 7, 9 & 11, Persiaran Kilang Pengkalan 32, Kawasan Perindustrian Pengkalan Ma	31500	Lahat	Perak	05-3228899	05-3219699	shyeguan@hotmail.com	http://www.shyeguan.com.my	Mr. Jackson Tan Kwong Chan	Plastic recycle product
										An advanced high performance HDPE - fiber composite material which builds and expands on the advantages of wood. It is
Fibersit Sdn Bhd	Lot 29, Medan Tasek, Tasek Ind. Estate	31400	Ipoh	Perak	05-5460342	05-5475115	fibe0250@fibersit.com	www.fibersit.com	Md. Hasnan Sidek	water, termite resistant and no material wastage
Toptrade Sources (M) Sdn Bhd	(off) 190, Taman Sentosa, Jln Lumut	32000	Sitiawan	Perak	05-6910880	05-6917694	toptrade@streamyx.com	www.toptradesources.com	Eow Ching Fatt	Recycling of PET, PVC plastic materials scrap. Consumer & industrial waste or scrap: cans, fiber sources
SP Industrial Supply	491-A, Jln. Pengkalan Lebai Man, Kg. Raja	08000	Sungai Petani	Kedah	04-4218951	04-4214454	sales@spindsupply.com	www.spindsupply.com	Lim Weng Seng	Second hand machinery & test equipments, office equipments, conveyors, aluminium and other metal scraps
Plasticycle Industries Sdn Bhd	Plot 12, Lorong Perusahaan 2, Kulim Industrial Estate	09000	Kulim	Kedah	04-4892421	04-4892414	twbung@tm.net.my/tw_bung@streamyx.com	www.plasticycle.com.my	Mr. Tan Wet Bung/Tan Khoon Chuah	Recycling of all types of plastics into plastic resin materials (second grade)
										Paper shredders & baling presses to cut and compress paper (& biomass) into cubes to facilitate transportation to recycling
Reprographic Business Machines (S) S/B	No. 1, Lot 65, Taman Layang-layang	88300	Kota Kinabalu	Sabah	088-230618	088-221626	rbm1976@sabah.com.my	www.hsm-online.de	Mark Chin or Peter Chin	points or factories
										Basically our company is collecting waste like waste cardboard, paper & plastics and PET bottle, aluminium tin and scrap
Greenman Recycling	Lot 17, Hock Seng Ind. Estate, Batu 3, Jalan Bomba		Sandakan	Sabah	089-272046	089-273276	yytain@yahoo.com		Kevin Tain	tyres. We are looking for who interested to buy those recycle items in large quantity. Contract basis too.
Eco Imaging Solution	AS 14, Jalan Hang Tuah 1, Taman Salak Selatan	57100	Kuala Lumpur	WP	03-79811448	03-79811884			Sean Tee	Remanufactured of toner cartridges/ink cartridges
BR Engineering S/B	WDT 83	89509	Penampang	Sabah	088-429280	088-429282	br_stevenchung@yahoo.com		Steven Chung	Recycled PVC resin; used rubber tyres
Segar Prima Sdn Bhd	Lot 24, Jln 4/32A, Batu 61/2, Off Jln Kepong	52000	Kuala Lumpur	WP	03-62504398	03-62589780	skloong@jetcorp.po.my	www.jetson.com.my	Mr. Loong Soo Kum	Selling recycle bin
See Hau Global Sdn Bhd	80, Jalan Pahang	53000	Kuala Lumpur	WP	03-40421355	03-40454629	seehau@intraco.com.my	www.intraco-e-pallet.com	Mr. C.C.Cheah	Plastic pallet and plastic bins
RCF Waste Solution Sdn Bhd	47A, Jalan Hamzah, Kampung Baru	50300	Kuala Lumpur	WP	03-26926678	03-26916678	rcfwaste@streamyx.com		Mohamed Ibnu Hassan Bin Thalha	Kitar semula tayar, gelas, plastik, paper - kompos untuk baja
										PRE develops, implements and manages Renewable Energy projects from conceptualization to reality utilizing Plasma
										Gasification Vitrification (PGV) Technology. The technology recycles all forms of waste, biomass and unwanted materials into
										reusable energy without harmful emissions or additional waste such as ash which would require further treatment. PRE's
Plasma Renewable Energy Sdn Bhd	Suite A-06-06, Plaza Mont Kiara, No.2, Jalan Kinrara	50480	Kuala Lumpur	WP	03-62033138	03-62032032	inquiry@plasmarenewables.com	www.plasmarenewables.com	En. Faizal Mohamad Dan	PGV Plants are a Total and Final Solution to waste disposal and high efficiency energy recovery.
Living Soil (M) Sdn Bhd (587764-D)	Unit 1-2R, Beverly Hills Plaza, Jalan Bundusan	88300	Penampang	Sabah	088-727199	088-712199	livingsoil2000@yahoo.com		Robert Liau; Ir. Chin Kah Thing; Dr. Henry Chok	
										Recycle waste paper product/waste agriculture product into packaging material / or forms for agriculture products like fruits
Tropika Spektra Farm	36, Jln Titir 33/25, Shah Alam Technology Park, Seksyen 33	40640	Shah Alam	Selangor	03-51228368	03-51228368	spek_001@tm.net.my		Edward Ooi, Nik Yahya, L.C. Wong	etc.; also into agriculture organic fertiliser
Envirosource Sdn Bhd	No. 6, Jalan Desa 2, Taman Universiti, Sg. Tangkas	43600	Kajang	Selangor	012-2063354	03-89268973	Envirosource1@yahoo.com		Kamaluddin Abdul Rahman	Continuous composter for municipality or industries that converts organic wastes to fertiliser
Rapat Nusantara Sdn Bhd	No. 59-2, Jalan 109E, Desa Business Park, Taman Desa	58100	Kuala Lumpur	WP	03-79872030	03-79872060	gan555@hotmail.com		Dr. Gan Khai Chung	Service - organic waste recycling service; Technology - 100% Malaysian technology; Product - Rapid composting system
										Service - collection of recyclable materials eg. Plastic, used computer, precious metal and scraps from electronic industry;
Ecoserve Recycler Sdn Bhd	No. 429, Lot 9778, Foochow Road No. 1	93300	Kuching	Sarawak	082-337393	082-337393	ecoserve@tm.net.my		Bernard Yong	Product - manufactured from recyclable materials
										We are solution provider for all recyclable scrap and we are equipped with a machine imported from Australia which is ready
Quan Cheng Initiative Sdn Bhd	Lot 4765, Batu 2 1/2, Jalan Batu Pahat	86000	Kluang	Johor	07-7765963	07-7769614	quancheng@hotmail.com		Mr. Alan Tan	for car/vehicle scraping if the govt. were to practise that. We call this machine shear machine
										Service - collect recyclable products/consulting/scrap site clearing & dismantle building and facilities; Technology -
Free Computer Factory (Recycle Services)	54, Jln Lading, Tmn Puteri Wangsa	81800	Ulu Tiram	Johor	019-7531713		teoh_ys@hotmail.com		Mr. Y.S. Teoh	consulting/method & process service; Product - metal/ plastics/ paper/ building material/ glass & etc.
										We collect all the plastic material which include PP, PE, PET, AS, ABS etc. We also provide PP, PE recycle resin to the
Heng Hiap Industries Sdn Bhd	PTD113024/5/6, Jalan Penaga 12, Taman Kota Putri	81750	Masai	Johor	07-3863733	07-3863739	tby@henghiap.com.my	http://www.henghiap.com	Mr. Ken Seah Kian Hoe/Mr. Tey Boon	customer
										Relive of all lead-acid batteries for vehicles, industries and telecommunication. The focus are the discarded batteries and the
Battery Care Sdn Bhd	No. 6, Jalan 7/1, Seri Kembangan Industrial Estate	43300	Seri Kembangan	Selangor	03-89459366	03-89459355	intrab@po.jaring.my		Jamaludin Hasan	dead batteries
SQT Technologies (M) Sdn Bhd	No. 9-0-2, Block A, Lobby 9, Megan Corporate Park, Jalan 2/125E, Taman Desa Pete	57100	Kuala Lumpur	WP	03-90561695	03-90564167	anthony@sqttech.net.my	www.sqttech.net.my/www.	Anthony Charles	We provide R & D services in energy conversion in areas of battery recycling and solat energy
XLNT Rubber Recycle Malaysia Sdn Bhd	No. 42-44, Jalan 34/10A, Taman Perindustrian IKS, Batu Caves	68100	Kuala Lumpur	WP	03-61885880	03-61896880	nan_azre@yahoo.co.uk		Johari Bin Ariffin	Mengangkut tayar terpakai, memproses bahan mentah, crumb, besi, fiber.
Tenaga-Max Sdn Bhd	No. 10B, Jln USJ 10/1B, Taipan Triangle	47620	Subang Jaya	Selangor	03-56372460	03-56371059	farina@tmaxgroup.com	www.tmaxgroup.com		Test equipments, buying pipes, electronics scraps & cables, refurbishing machineries & manufacturing
										Servis - Pelupusan sisa buangan, kitar semula & guna semula sepenuhnya bahan buangan kepada bahan nilai tambah;
Autokami Factory Sdn Bhd	21, Jalan Cemerlang, Off Jalan Sekolah	40000	Pelabuhan Klang	Selangor	03-31651815	03-31650377			Zaihan Bin Abu	Teknologi - Penggunaan mesin sepenuhnya tanpa pencemaran alam/udara; Produk - Organik & bukan organik
										Relive of all lead-acid batteries for vehicles, industries and telecommunication. The focus are the discarded batteries and the
IBSB Management Sdn Bhd	No. 6, Jalan 7/1, Seri Kembangan Industrial Estate	43300	Seri Kembangan	Selangor	03-89459366	03-89459355	intrab@po.jaring.my		Jamaludin Hasan	dead batteries
Jaring Metal Industries Sdn Bhd	Lot 1309, Kampung Lembah Kinrara, Jalan Puchong, Batu 8 1/2	47100	Puchong	Selangor	03-80766133	03-80768199	sales@jaringmetal.com	www.jaringmetal.com	Tony Ng/Nigel Ng	Trading and processing of ferrous, non-ferrous and precious metal
Green Plastic Recycling Sdn Bhd	2-3A, Subang Business Centre, Jalan USJ 9/5T	47620	Subang Jaya	Selangor	03-80233227	03-80232677	joeykrop@tm.net.my		Joey Ong	Collecting all types of plastic waste & recycler

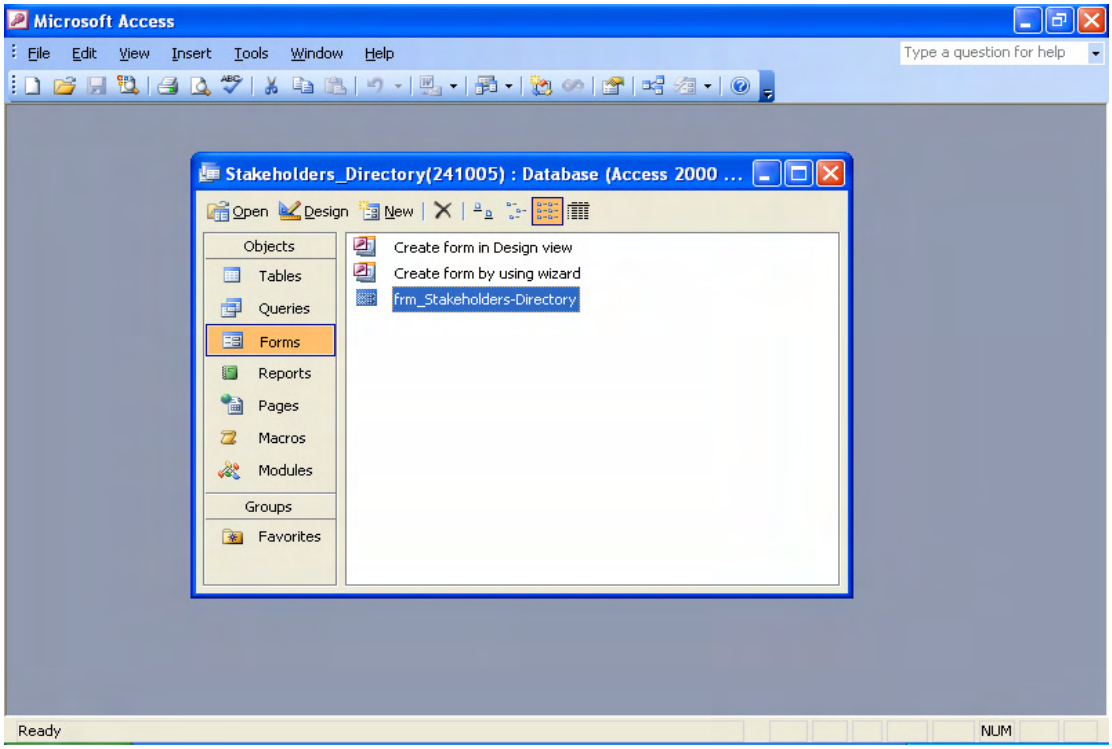
Appendix 5

Summary Manual on "How to "View", "Search" and "Add New" Data / Information in the Database Form. – "Stakeholders Directory"

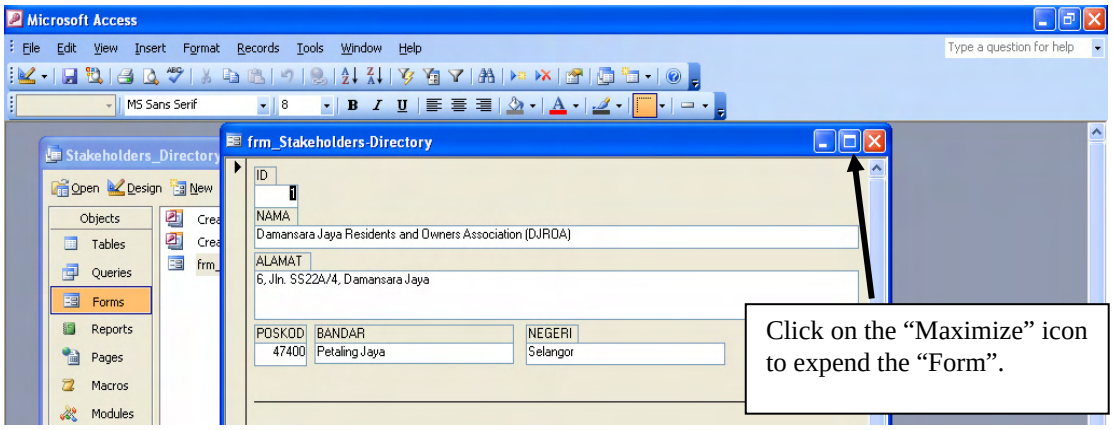
5. Summary Manual on "How to "View", "Search" and "Add New" Data / Information in the Database Form. – "Stakeholders Directory"

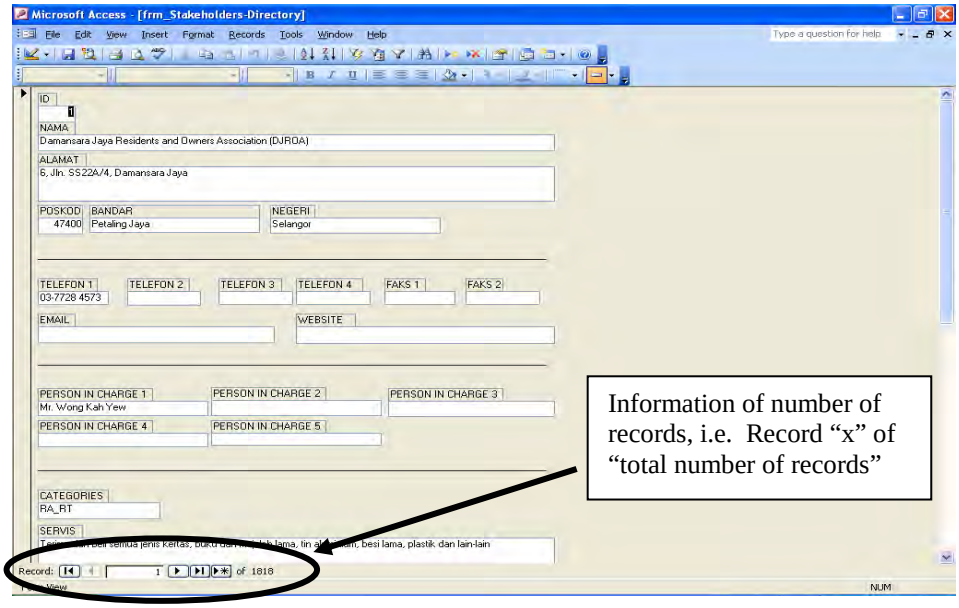
1.1 Start

1.2 Run Microsoft Access, open the "Stakeholders_Directory" database file.



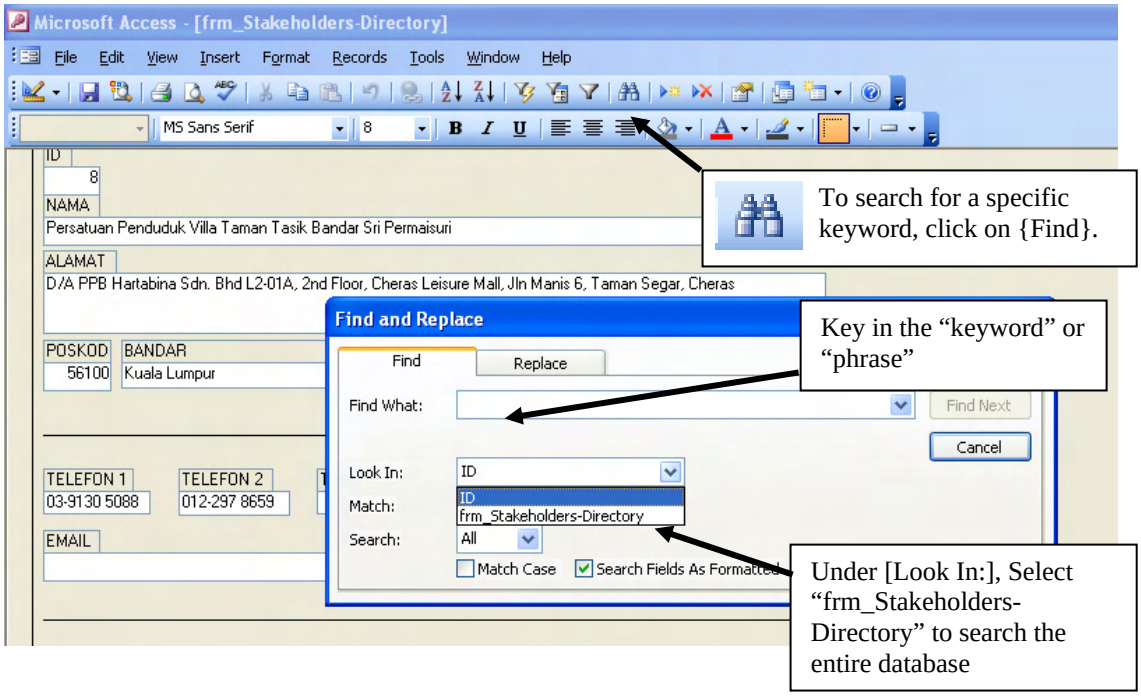
1.3 To "View" or "Add New" data and information, click the "FORM" icon and double-click the "frm_Stakeholders_Directory".

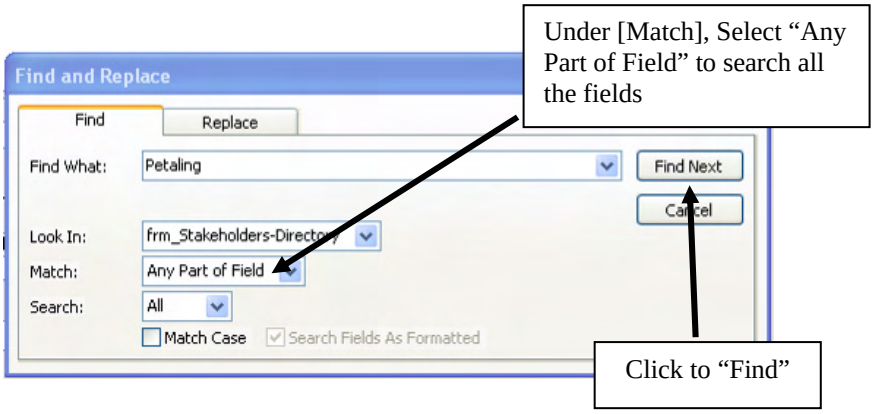




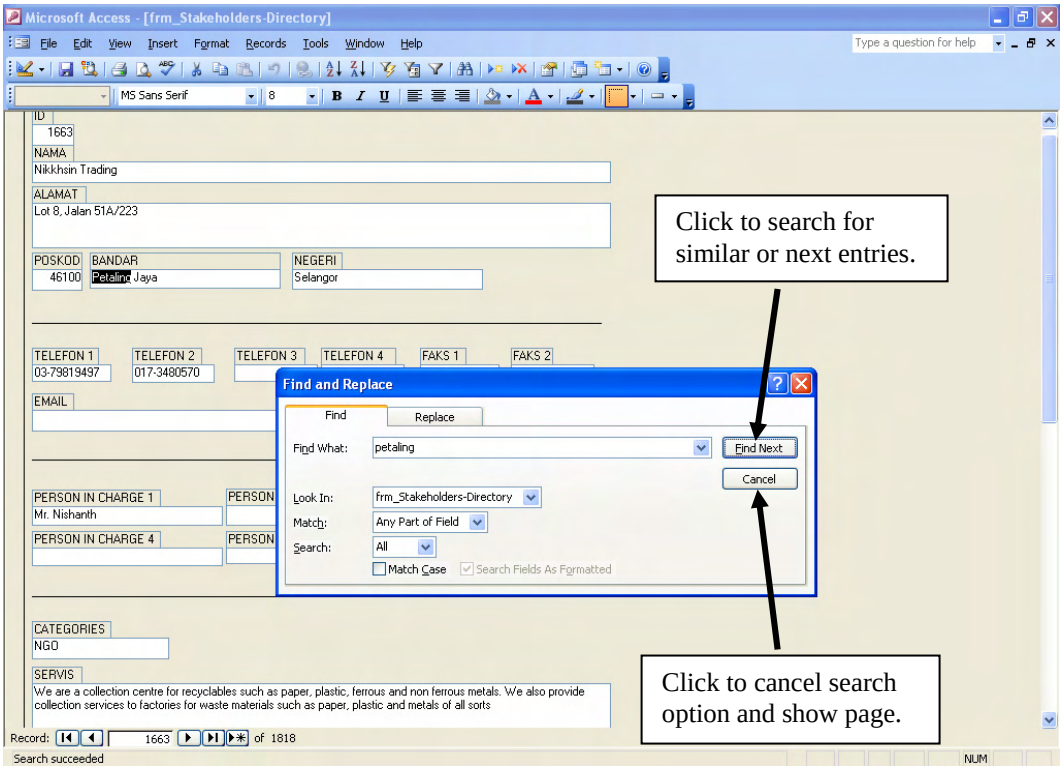
1.4 To "View" the existing data and information, scroll through the pages using the "Scroll Wheel" of the mouse, or [Page Up] or [Page Down] of the keyboard.

1.5 To "Search" for a particular "word" or "phrase" in the database, use the {Find}command.

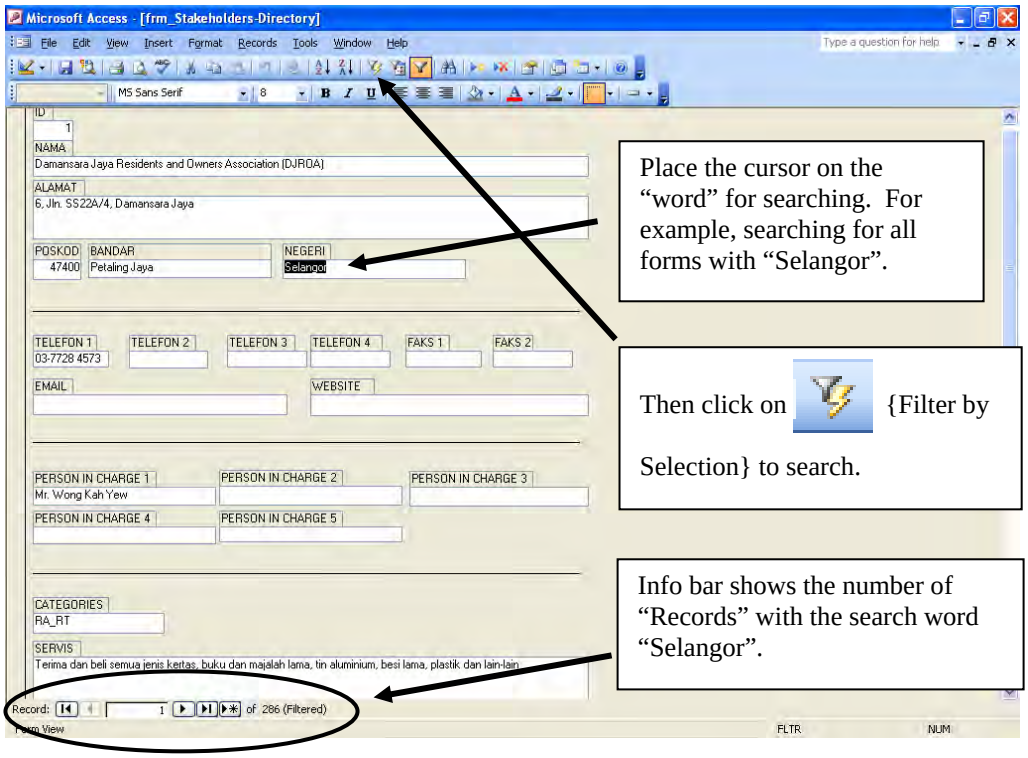




1.6 The page containing the "keyword" will be displayed, form page by page.



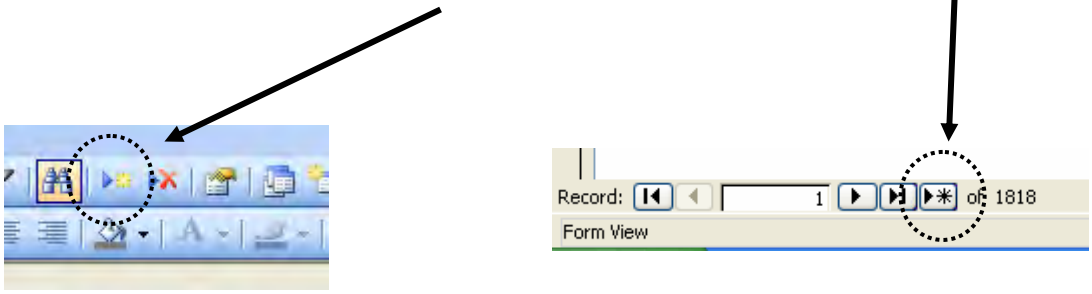
1.7 Alternatively, searching can also be done by using the "Filter" options.



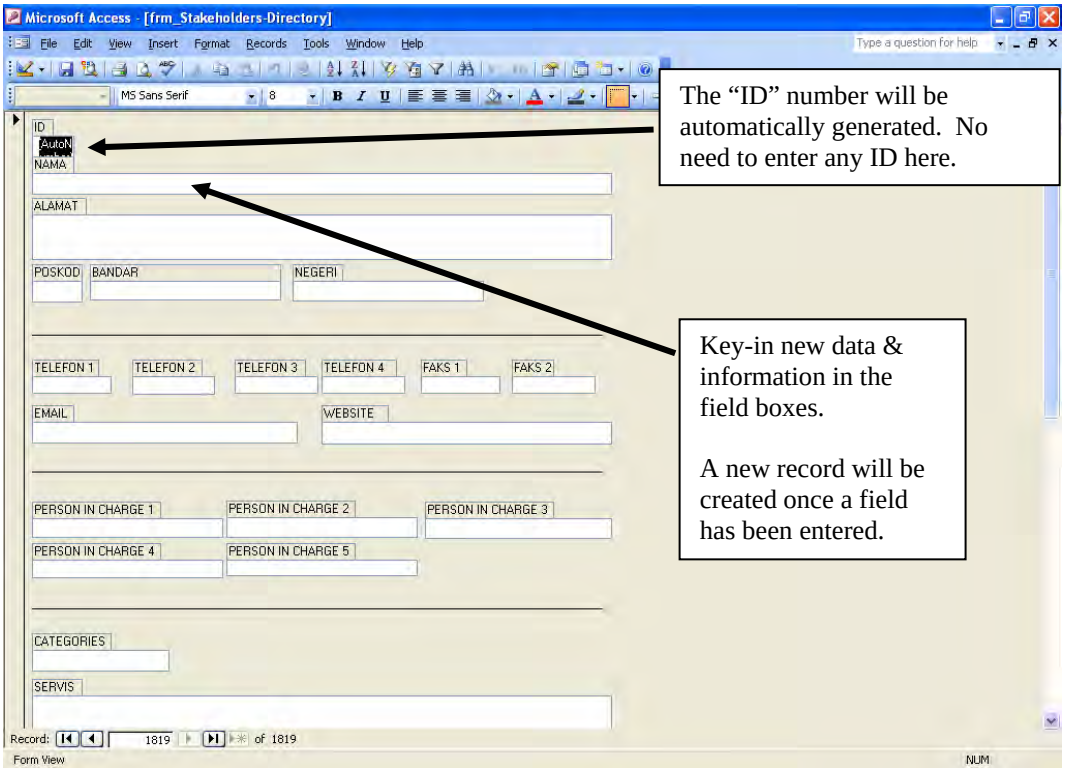
1.8 To "View" the "filtered" or "Found" data and information, scroll through the pages using the "Scroll Wheel" of the mouse, or [Page Up] or [Page Down] of the keyboard.

1.9 To cancel the "filter" option, click on {Remove Filter}. The display will revert back to the original state.

1.10 To add a new record. Click on the icon at top menu bar or the at the bottom left corner of the page.

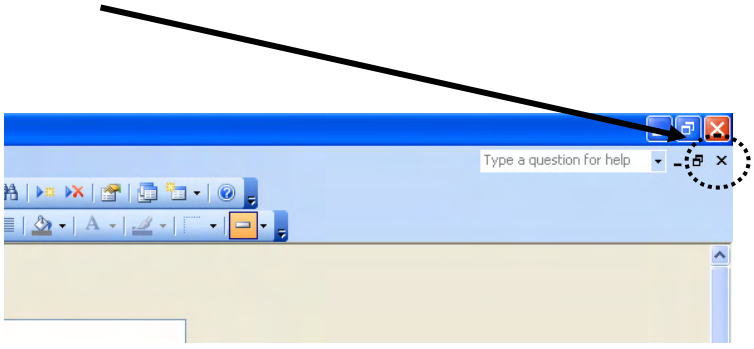


1.11 To "blank" form page will be displayed.



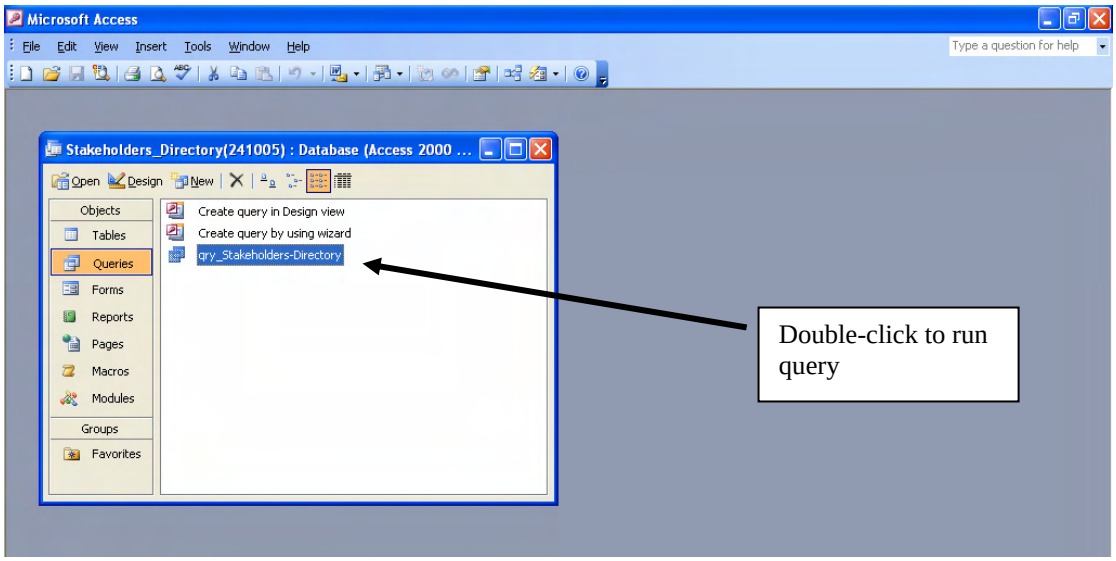
1.12 To delete a record, scroll to the required record for deletion and click on the icon.

1.13 To close the "Form" page and return to the database window, click on the "Close Wi icon

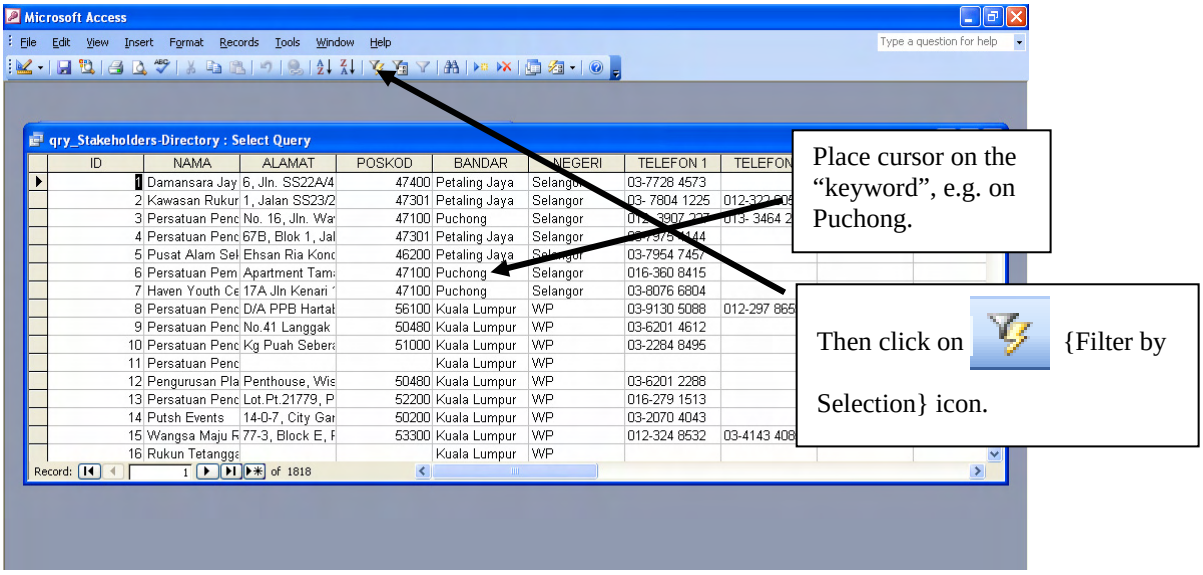


2.0 How to use "Query" to search and generate "Reports".

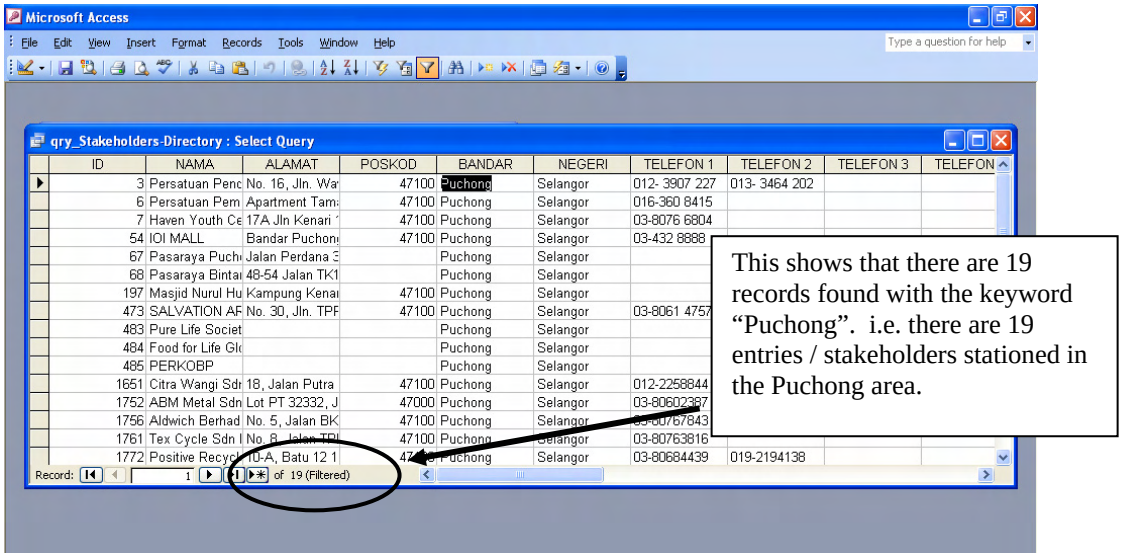
2.1 Select "Queries" on the database window and double-click on the "qry_ Stakeholders_Directory".



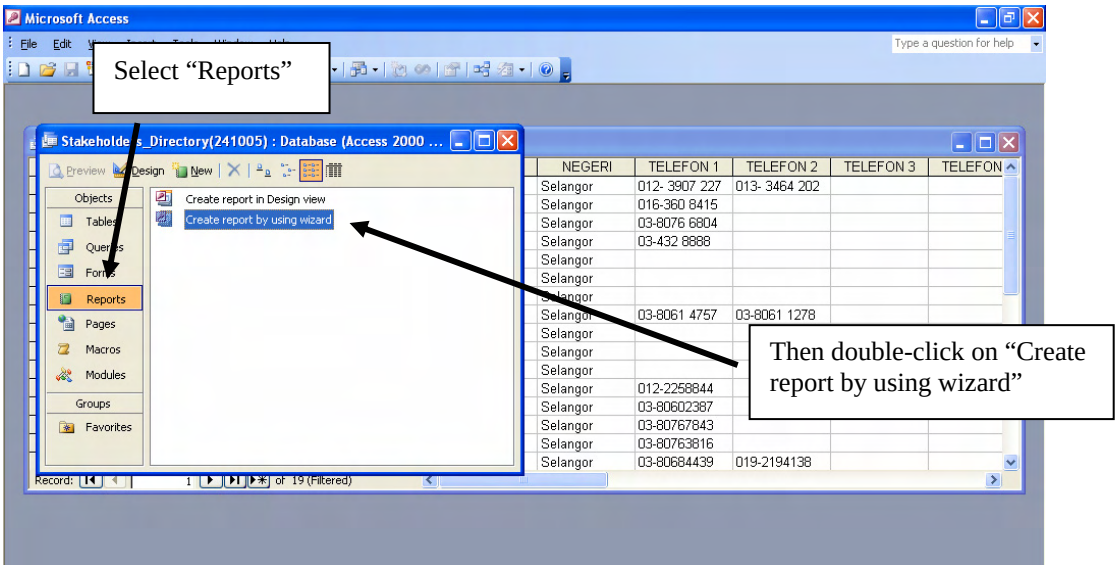
2.2 The query page will be displayed in the table format. Select the keyword that you want to query and search. eg. to search for all stakeholders in the Puchong area.

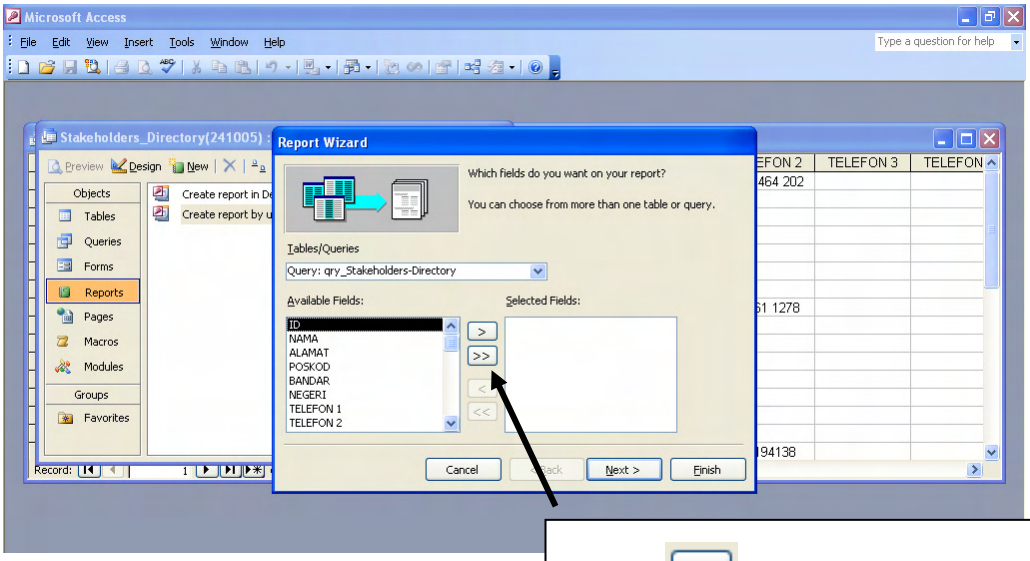


2.3 The query option will filter the records and list all the records with the keyword "Puchong" in them.

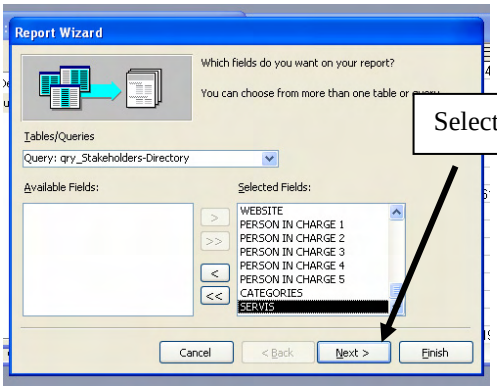


2.4 To generate report of the found records, click on the "Database Window" icon on the top menu bar.

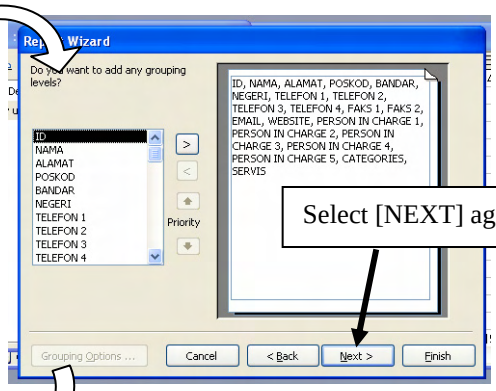




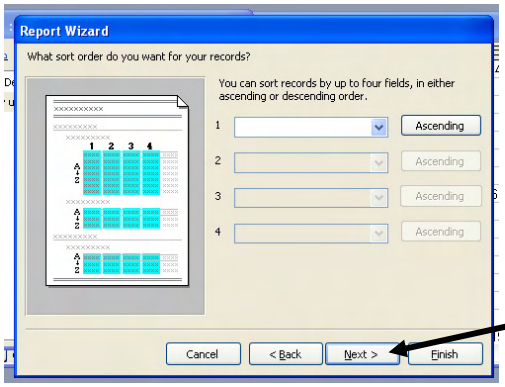
Click on >> to select all the "Available Fields to the "Selected Fields" box.



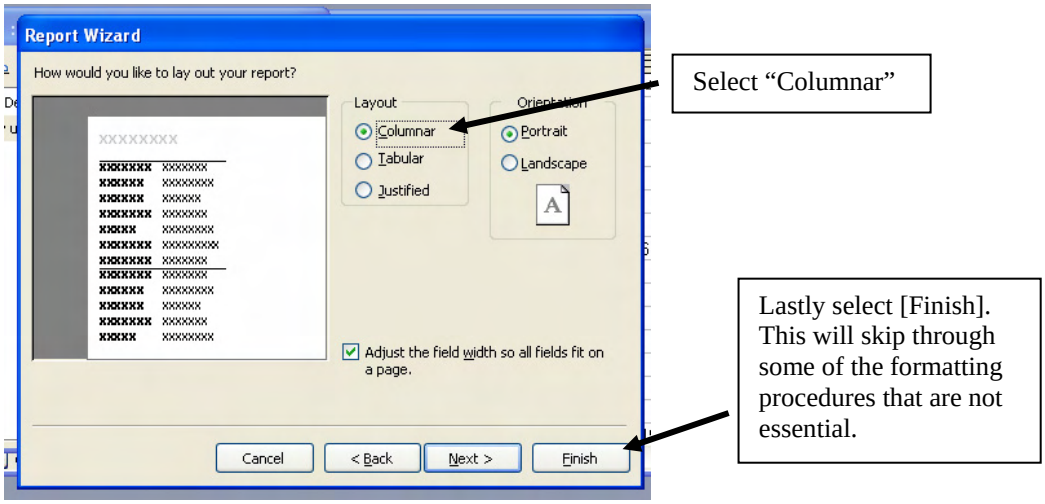
Select [NEXT]



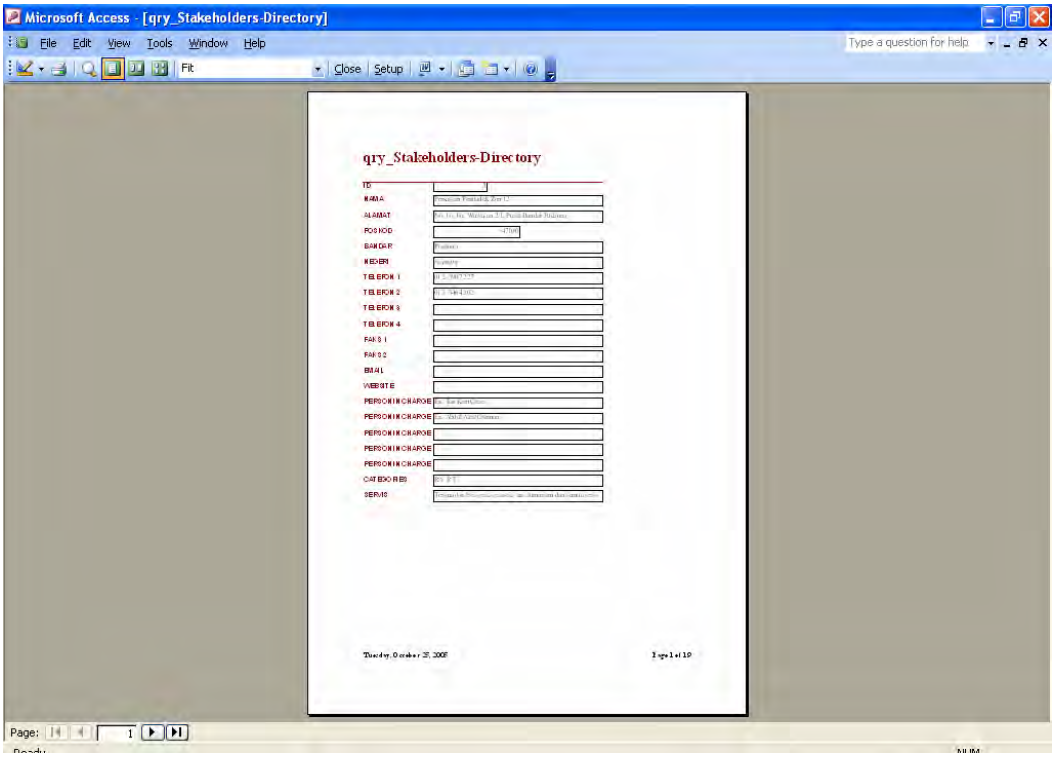
Select [NEXT] again



And select [NEXT] yet again



2.5 The query report will be generated and displayed. For this example, a total of 19 reports will be generated, i.e. the total number of records found matching the required keyword.



Appendix 6

PP-II: Format of Awareness Survey

PUBLIC AWARENESS & PARTICIPATION IN SOURCE SEPARATION

(On an individual basis and NOT as representative of your organisation)

Date: _____

I. BASIC DESCRIPTION OF RESPONDENT

1.1 Name (Optional) ……

1.2 Address : ……

1.3 Contact (Optional) ……

1.4 Gender: *Male* ☐ *Female* ☐

1.5 Race: Please tick ✓ the correct answer

Malay ☐ Chinese ☐ Indian ☐ Others (Please specify) ☐……..

1.6 Religion: Please tick ✓ the correct answer

Islam ☐ Buddhism ☐ Christianity ☐ Hinduism ☐ Others ☐

1.7 Age Group: ≤17 ☐ 18~22☐ 23~35☐ 36~45☐ 46~55☐ 56~65☐ More than 65☐

1.8 Type of Employment:

Government ☐ *Private Company* ☐ *School/Learning Institution* ☐ *Students* ☐

Others (Housewife, retiree, etc.) ☐

1.9 Academic qualifications: Please tick ✓ the correct answer.

a. No schooling ☐
b. Primary School ☐
c. Secondary School ☐
d. Diploma/Certificate ☐
d. University Graduate ☐
e. Post Graduate ☐
f. Others (Please specify) ……..
g. Others (Please specify) ……..

1.10 How many people live in your household?

1-2 persons ☐ *3-5 persons* ☐ *6-10 persons* ☐ *>10 persons* ☐

1.11 What type of home do you currently reside in?

Terraced house ☐ Semidetached house ☐

Detached house ☐ Highrise (Apartment/ Condominium) ☐

Shophouse ☐ Commercial units ☐

1.12 Who normally takes the garbage out in your family?

Husband ☐ Wife ☐ Children ☐ Maid ☐ Self (single person) ☐

Others (Relatives, friends, housemates) ☐

2. AWARENESS ON 3R ACTIVITIES

2.1 Do you think 3R activities (i.e. reduce, reuse, recycle) are necessary? *Yes* ☐ *No* ☐

If **yes**, please provide your reason (you may select more than one):

To save our natural resources ☐

To prevent pollution ☐

To keep our environment clean ☐

To save cost ☐ *For commercial purpose* ☐

Other reason ☐ *Pls. Specify* ……

2.2 Do you have following knowledge on 3Rs?

Please rate the level of your knowledge *(tick only one applicable answer for each statement)*

No	Questions: Do you know……?	No Idea	Not Sure	Know	Know VeryWell
1	What Item can be recycled?				
2	Who collects the recyclables?				
3	Where the recyclables are sent?				
4	How the recyclables are treated?				
5	Ideas for reducing/reusing/recycling wastes?				

Notes: Please select 4: when you know very well, and have some information to prove it
3: when you know
2: when you know, or have heard of it, but not so sure.
1: when you have no idea

2.3 Do you participate in any activities on 3Rs?

	No	Activities	**Currently practice** 1 = YES 2 = NO	**If "NO" state reason** 1 = No time 2 = Not interested 3 = Need more info	**Future Plan** 1 = Continue current practice 2 = Participate from now 3 = No plan to participate
Reduce	1	Buy wisely			
	2	Avoid buying/using disposable goods			
	3	Refuse excessive packaging at shop			
	4	Refuse plastic bags at shop			
	5	Use washable, refillable beverage container when you go out			
Reuse	6	Wash and reuse bottles, cans & bins			
	7	Reuse half-used papers			
Recycle	8	Practice waste separation at home / office for recycling			
	9	Send / sell recyclable items to recycling centers			
	10	Sell / give recyclable items to collectors			
	11	Buy from second hand / recycling shops			
	12	Volunteer at recycling organization			
Others	13	Compost yard and garden wastes, etc.			
	14	Others (specify_____ _____)			
	15	Others (specify _____)			
	16	Others (specify _____)			

Notes: "Buy wisely" includes following; buy long lasting things, buy things with less packaging, buy foods in reusable or easier-to-recycle containers, buy refillable things, buy things do not contain harmful substances, and buy environmental friendly items, etc.

3. SOURCE SEPARATION ACTIVITY

3.1 How is source separation carried out at your place?

Please provide the type of wastes separated and collected methods:

No	Activities	YES				NO
		Door to door	Collection points	Recycling centres	Others	
1	Food wastes					
2	Old newspapers					
3	Cardboards					
4	Books / Magazines					
5	Plastic bottles					
6	Glass					
7	Metal cans					
8	Aluminium cans					
9	Used Furniture					
10	Old Clothes					
11	Used batteries / fluorescent tubes					
12	Others (_____)					

3.2 Do you have any problem with the separation/ collection methods of recyclables?

Yes ☐ *No* ☐

If **yes**, please explain why:

Separation method is not suitable ☐ *bins/ bags are not suitable* ☐

Frequency and time of collection frequency is not suitable ☐

Pls. provide brief explanation:……

……

3.3 What is your preferred collection frequency for recyclables?

Once a week ☐ Once in 2 weeks ☐ Once a month ☐

3.4 What is your preferred day and time of collection?

Specify (day)……. (time)…….

3.5 Would you like to have a drop-off point in your neighbourhood / area?

Yes ☐ *No* ☐

4. ADDITIONAL COMMENTS & SUGGESTIONS ON RECYCLING

……
……
……
……

5. PLEASE INDICATE HOW YOU CAN CONTRIBUTE MORE TOWARDS THE RECYCLING ACTIVITIES

……
……
……
……

Explanatory Notes:

1.Definitions:

a) 3R ACTIVITY: Refers to the three activities, i.e., reduction, reuse, recycling.

b) WASTE REDUCTION: To reduce the amount of waste that will be put into waste stream through the changes of lifestyle and/or manner of consumption, and so on.

c) SOURCE SEPARATION: To separate recyclables from other wastes at home/ office/ any other places where wastes are generated.

d) RECYCLING: To utilize a waste for other purposes.