

## CHAPTER 3

# STATEMENT OF NEED

### 3.0 Introduction

This chapter outlines the background of the project and the reasons for it being proposed. The statement of need for the Proposed Project covering the descriptions of its specific needs and reasons as well as the scenarios on the recent development associated with the scheduled waste issues in the country. The statement of need establish the social, economic or other needs for the project and conclude the definitive statement of the aim of the project.

### 3.1 Background of SWMCJ Project

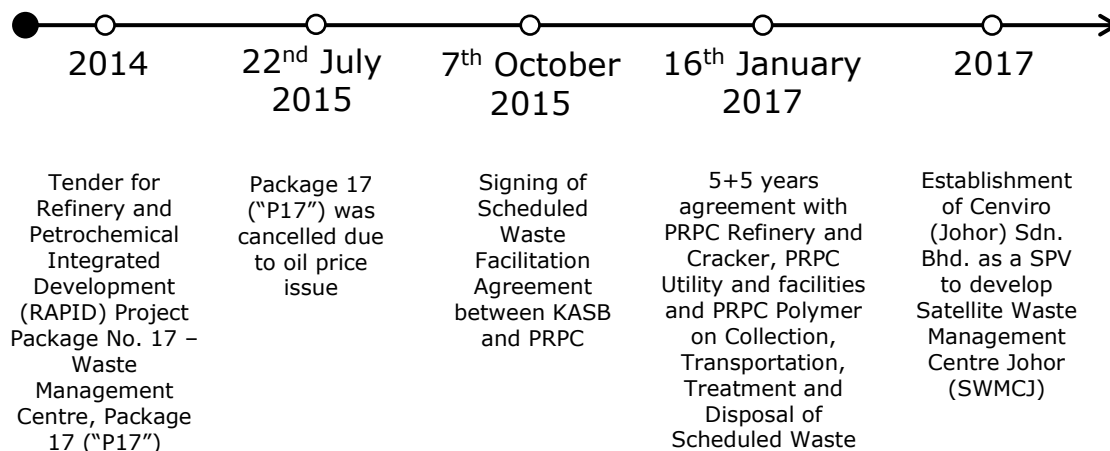
The Proposed Project is titled the "**Proposed Development of Satellite Waste Management Centre Johor (SWMCJ) at PTD 2288 in Mukim Pantai Timur, District of Kota Tinggi, Johor for Cenviro (Johor) Sdn. Bhd.**". The project proponent, Cenviro (Johor) Sdn. Bhd. (CJSB) proposed to develop a Satellite Waste Management Centre Johor (SWMCJ) for the management of scheduled waste generated from PETRONAS RAPID project at the Proposed Project site.

The project was initiated in 2014, Kualiti Alam Sdn. Bhd. (KASB), who owns and operates the only integrated scheduled waste management centre in Malaysia, was involved in a tender for Refinery and Petrochemical Integrated Development (RAPID) Project Package No. 17 - Waste Management Centre, Package 17 ("P17"). In 22<sup>nd</sup> July 2015, P17 was cancelled due to oil price issue. Hence, to support PETRONAS and Johor Petroleum Development Corporation (JPDC) development and cost saving, Cenviro has make the initiative to invest for the development of scheduled waste management facility in Johor.

To support this development for Petroliaam Nasional Berhad (PETRONAS) Refinery & Petrochemical Corporation Sdn. Bhd. (PRPC), KASB have signed a Scheduled Waste Facilitation Agreement in respect of scheduled waste management and treatment service provider arrangements on the 7<sup>th</sup> October 2015.

On 14<sup>th</sup> January 2017, KASB signed a 5+5 years agreement with PRPC Refinery and Cracker, PRPC Utility and Facilities and PRPC Polymer on Collection, Transportation, Treatment and Disposal of Scheduled Waste from these facilities. Other facilities in RAPID has also sign the similar agreement with KASB. For the purpose of supporting this agreement, a Special Purpose Vehicle (SPV) is established with the company name **Cenviro (Johor) Sdn. Bhd. (CJSB)** to develop Satellite Waste Management Centre Johor (SWMCJ). KASB has identified

and leased a 40 acres land in Johor with close proximity to the current development of RAPID which is potential to be developed as SWMCJ.



The EIA is purposely submitted for the development of Phase 1 involving the construction and operation of main scheduled waste management facilities such as **Thermal Treatment Plant with Power Generation Capability, Off-site Storage Facility, Industrial Effluent Treatment System (IETS)** as well as other plant infrastructures. According to Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order 2015, the development of proposed facilities are require to submit an EIA report to the DOE and getting approval from Director General of Environmental Quality prior to the construction and operation of SWMCJ Project.

### 3.1.1 Source and Amount of Scheduled Waste

During a regular discussion with PRPC, KASB was informed that the scheduled waste generated from PRPC Refinery and Cracker (RC) and Petrochemical Plant will be at least 10,000 MT of scheduled waste per annum and to be treated at proposed SWMCJ Thermal Treatment Plant with Power Generation Capability. Based on this information, KASB plans to develop a Satellite Waste Management Centre Johor (SWMCJ) to manage and treat the potential scheduled waste generation from these facilities and also future waste from PRPC. It was highlighted in the meeting that close proximity to RAPID area is key to reducing the risk of having to transport scheduled waste to Kualiti Alam Waste Management Centre (KAWMC), Negeri Sembilan. In future, CJSB is targeting to collect and manage the scheduled waste produced by the potential waste generator at the Southern Region of Peninsular Malaysia as well as from PETRONAS RAPID project.

RAPID project is located at Pengerang, Mukim of Pengerang, District of Kota Tinggi, Johor and is in close proximity to the international shipping lane connecting the Straits of Malacca, Singapore and the South China Sea. PETRONAS intends to build a grass root integrated Refinery and Petrochemicals Complex by developing Refinery and Petrochemical Integrated Development (RAPID) project to meet both domestic and Asia's energy and chemicals demand.

When the collection reach optimum level at 23,000 tonne per annum, it is expected to be treated at SWMCJ Thermal Treatment Plant that will generate residual (bottom and fly ash) and to be final disposed at KAWMC, Negeri Sembilan. In future, SWMCJ is also intended to install several recovery and recycling facilities on site in the future to cater the scheduled waste that can be recycled and the discussion is still ongoing. Among the potential recovery and recycling facilities are Oil and Solvent Recovery and Catalyst Recycling. This is subjected to the availability of the waste and market study findings.

Scheduled waste to be received at CJSB but not meeting the Waste Acceptance Criteria (WAC) after the lab analysis will be sent to KAWMC for final treatment and disposal. During RAPID shutdown activity or annual turn around, the amount of scheduled waste generated is more than the capacity of the on-site storage. Hence, CJSB will be used as off-site storage, all scheduled waste will undergo lab analysis to determine the suitable treatment method.

The quantity of scheduled waste is based on the estimation given by PETRONAS RAPID project as the maximum normal operation. The waste group or description is to be used as reference and the final actual waste may varies from the estimation of the waste group or types or the quantities. Certain scheduled waste is group together based on the scheduled waste characteristic and maybe change in its final treatment method when the actual waste received at SWMCJ or when more info is gathered from PETRONAS RAPID Project.

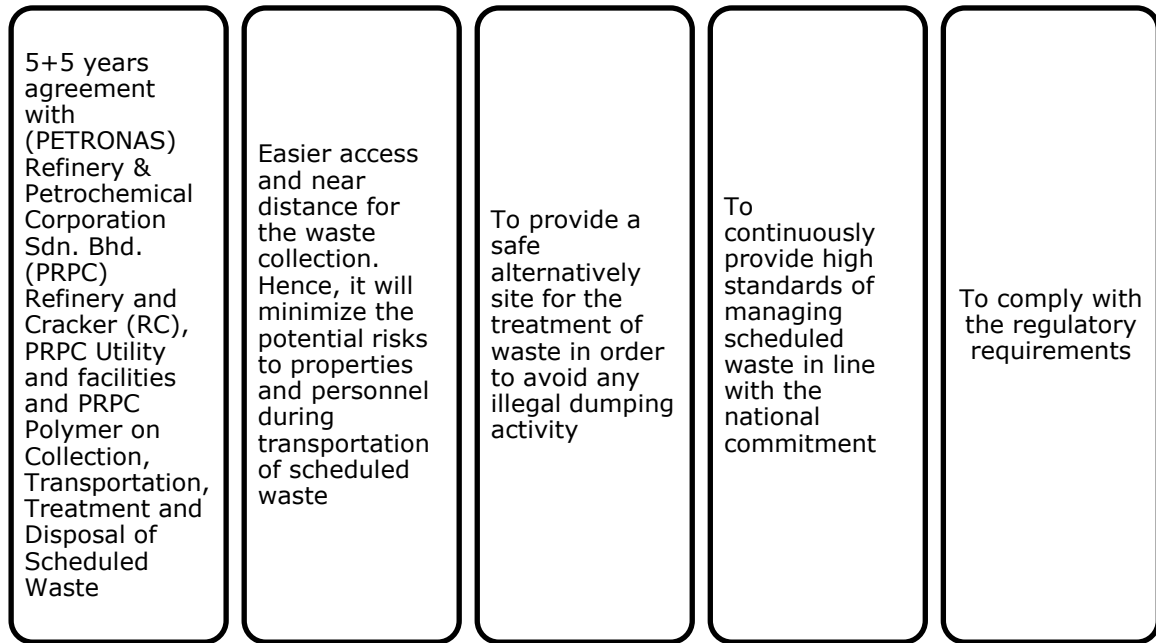
### 3.2 Requirement of EIA

The project intends to set up new satellite waste management centre in Johor State to manage and treat scheduled waste in a secured manner. On 9<sup>th</sup> March 2016, Department of Environment (DOE) has requested the project proponent via an official letter (Ref. No.: AS(PN) 50/013/101/084 Jld 4 ( ), **Appendix 3.A**) to prepare and submit an Environmental Impact Assessment in accordance to Second Schedule: Activity 14 (a) Waste Treatment and Disposal of Scheduled Waste under Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order 2015.

### 3.3 Statement of Need

The proposed SWMCJ facilitates the transportation, storage and treatment of scheduled waste collected from PETRONAS RAPID project and potentially from other waste generator in Southern Region of Peninsular Malaysia in future. The proposed development is expected to reduce the frequency and time of long haulage of scheduled waste, which can be treated at the proposed SWMCJ site. **Figure 3.1** shows the summary of statement of need prior to the development of SWMCJ.

## Summary of Statement of Need



**Figure 3.1: Summary of Statement of Need**

CJSB is targeting to collect seventy-five (75) of the seventy-seven (77) types of scheduled waste as presented in **Table 3.1** excluding SW 404 (pathogenic wastes, clinical wastes or quarantined materials) and SW 431 (waste from manufacturing or processing or use of explosives). Due to its quantity, concentration, physical, chemical characteristics, scheduled wastes may cause in the increase of irreversible or incapacitating illness or even increase in mortality rate if improperly treated, stored, disposed or mismanaged. In addition, scheduled wastes may pose substantial or potential hazards to human health and the environment. Hence, the generated waste shall be managed in proper and secure manner.

**Table 3.1: Type of Scheduled Waste to be received by CJSB (Scheduled Waste Listed under the First Schedule of Environmental Quality (Scheduled Wastes) Regulations 2005)**

<b>Waste Code</b>	<b>Description</b>
<b>SW 1</b>	<b>Metal and metal-bearing wastes</b>
SW 101	Waste containing arsenic or its compound
SW 102	Waste of lead acid batteries in whole or crushed form
SW 103	Waste of batteries containing cadmium and nickel or mercury or lithium
SW 104	Dust, slag, dross or ash containing arsenic, mercury, lead, cadmium, chromium, nickel, copper, vanadium, beryllium, antimony, tellurium, thallium or selenium excluding slag from iron and steel factory
SW 105	Galvanic sludges
SW 106	Residues from recovery of acid pickling liquor
SW 107	Slags from copper processing for further processing or refining containing arsenic, lead or cadmium
SW 108	Leaching residues from zinc processing in dust and sludges form
SW 109	Waste containing mercury or its compound
SW 110	Waste from electrical and electronic assemblies containing components such as accumulators, mercury-switches, glass from cathode-ray tubes and other activated glass or polychlorinated biphenyl-capacitors, or contaminated with cadmium, mercury, lead, nickel, chromium, copper, lithium, silver, manganese or polychlorinated biphenyl
<b>SW 2</b>	<b>Wastes containing principally inorganic constituents which may contain metals and organic materials</b>
SW 201	Asbestos wastes in sludges, dust or fibre forms
SW 202	Waste catalysts
SW 203	Immobilized scheduled wastes including chemically fixed, encapsulated, solidified or stabilized sludges
SW 204	Sludges containing one or several metals including chromium, copper, nickel, zinc, lead, cadmium, aluminium, tin, vanadium and beryllium
SW 205	Waste gypsum arising from chemical industry or power plant
SW 206	Spent inorganic acids
SW 207	Sludges containing fluoride
<b>SW 3</b>	<b>Wastes containing principally organic constituents which may contain metals and inorganic materials</b>
SW 301	Spent organic acids with pH less or equal to 2 which are corrosive or hazardous
SW 302	Flux waste containing mixture of organic acids, solvents or compounds of ammonium chloride
SW 303	Adhesive or glue waste containing organic solvents excluding solid polymeric materials
SW 304	Press cake from pretreatment of glycerol soap lye
SW 305	Spent lubricating oil
SW 306	Spent hydraulic oil
SW 307	Spent mineral oil-water emulsion
SW 308	Oil tanker sludges
SW 309	Oil-water mixture such as ballast water

**Table 3.1: Type of Scheduled Waste to be received by CJSB (Scheduled Waste Listed under the First Schedule of Environmental Quality (Scheduled Wastes) Regulations 2005) (cont.)**

Waste Code	Description
SW 310	Sludge from mineral oil storage tank
SW 311	Waste oil or oily sludge
SW 312	Oily residue from automotive workshop, service station, oil or grease interceptor
SW 313	Oil contaminated earth from re-refining of used lubricating oil
SW 314	Oil or sludge from oil refinery plant maintenance operation
SW 315	Tar or tarry residues from oil refinery or petrochemical plant
SW 316	Acid sludge
SW 317	Spent organometallic compounds including tetraethyl lead, tetramethyl lead and organotin compounds
SW 318	Waste, substances and articles containing or contaminated with polychlorinated biphenyls (PCB) or polychlorinated triphenyls (PCT)
SW 319	Waste of phenols or phenol compounds including chlorophenol in the form of liquids or sludges
SW 320	Waste containing formaldehyde
SW 321	Rubber or latex wastes or sludge containing organic solvents or heavy metals
SW 322	Waste of non-halogenated organic solvents
SW 323	Waste of halogenated organic solvents
SW 324	Waste of halogenated or unhalogenated non-aqueous distillation residues arising from organic solvents recovery process
SW 325	Uncured resin waste containing organic solvents or heavy metals including epoxy resin and phenolic resin
SW 326	Waste of organic phosphorus compound
SW 327	Waste of thermal fluids (heat transfer) such as ethylene glycol
<b>SW 4</b>	<b>Wastes which may contain either inorganic or organic constituents</b>
SW 401	Spent alkalis containing heavy metals
SW 402	Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous
SW 403	Discarded drugs containing psychotropic substances or containing substances that are toxic, harmful, carcinogenic, mutagenic or teratogenic
SW 405	Waste arising from the preparation and production of pharmaceutical product
SW 406	Clinker, slag and ashes from scheduled wastes incinerator
SW 407	Waste containing dioxins or furans
SW 408	Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes
SW 409	Disposed containers, bags or equipment contaminated with chemicals, pesticides, mineral oil or scheduled wastes
SW 410	Rags, plastics, papers or filters contaminated with scheduled wastes
SW 411	Spent activated carbon excluding carbon from the treatment of potable water and processes of the food industry and vitamin production
SW 412	Sludges containing cyanide
SW 413	Spent salt containing cyanide
SW 414	Spent aqueous alkaline solution containing cyanide
SW 415	Spent quenching oils containing cyanides

**Table 3.1: Type of Scheduled Waste to be received by CJSB (Scheduled Waste Listed under the First Schedule of Environmental Quality (Scheduled Wastes) Regulations 2005) (cont.)**

Waste Code	Description
SW 416	Sludges of inks, paints, pigments, lacquer, dye or varnish
SW 417	Waste of inks, paints, pigments, lacquer, dye or varnish
SW 418	Discarded or off-specification inks, paints, pigments, lacquer, dye or varnish products containing organic solvent
SW 419	Spent di-isocyanates and residues of isocyanate compounds excluding solid polymeric material from foam manufacturing process
SW 420	Leachate from scheduled waste landfill
SW 421	A mixture of scheduled wastes
SW 422	A mixture of scheduled and non-scheduled wastes
SW 423	Spent processing solution, discarded photographic chemicals or discarded photographic wastes
SW 424	Spent oxidizing agent
SW 425	Wastes from the production, formulation, trade or use of pesticides, herbicides or biocides
SW 426	Off-specification products from the production, formulation, trade or use of pesticides, herbicides or biocides
SW 427	Mineral sludges including calcium hydroxide sludges, phosphating sludges, calcium sulphite sludges and carbonates sludges
SW 428	Wastes from wood preserving operation using inorganic salts containing copper, chromium or arsenic of fluoride compounds or using compound containing chlorinated phenol or creosote
SW 429	Chemicals that are discarded or off-specification
SW 430	Obsolete laboratory chemicals
SW 432	Waste containing, consisting of or contaminated with, peroxides
<b>SW 5</b>	<b>Other wastes</b>
SW 501	Any residues from treatment or recovery of scheduled wastes

In summary, SWMCJ facilities are critically needed in the Southern Region of Peninsular Malaysia for the following reasons:

- i. KASB signed a 5+5 years agreement with (PETRONAS) Refinery and Petrochemical Corporation Sdn. Bhd. (PRPC) Refinery and Cracker (RC), PRPC Utility and facilities and PRPC Polymer on Collection, Transportation, Treatment and Disposal of Scheduled Waste from these facilities;
- ii. Easier access and near distance for the waste collection from waste generator in Pengerang site and the Southern Region of Peninsular Malaysia. Hence, it will minimize the potential risks to properties and personnel during transportation of scheduled waste;
- iii. To reduce the carbon foot print by minimizing the transportation distance from the waste generator to CJSB;



- iv. To provide a safe alternatively site for the treatment of waste in order to avoid any illegal dumping activity that could jeopardise health and environment;
- v. To serve as satellite scheduled waste management facility in Malaysia especially for the Southern Region of Peninsular Malaysia;
- vi. To cater the increasing volume of scheduled waste due to development of RAPID process which is about 300,000 barrel per day;
- vii. To continuously provide high standards of managing scheduled waste in line with the national commitment to protect the human health and environment of the country;
- viii. To comply with the regulatory requirements of Environmental Quality (Scheduled Waste) Regulations 2005 in which scheduled waste shall be disposed of at prescribed premises only; and
- ix. To fulfil future and long term planning for scheduled waste management.

### **3.3.1 Legal Requirement**

The Proposed Project is carried out in order to fulfil the requirements under the provision of Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 which has been gazetted and enforced since 28<sup>th</sup> August 2015. Thus, AMR Environmental Sdn. Bhd. (AMR) was appointed by CJSB to perform and submit the Environmental Impact Assessment (EIA) report to the Department of Environment (DOE) Putrajaya prior to the implementation of the Proposed Project.

The Proposed Project of is categorized as a prescribed activity and thus need for the EIA study to be carried out. The preparation of EIA report is in compliance to the legal requirement under Section 34A, Environmental Quality Act 1974.

<b>"34A. Report on impact on environment resulting from prescribed activities."</b>
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According to **Regulation 5 (Treatment of Scheduled Wastes)** of Environmental Quality (Scheduled Wastes) Regulations, 2005, scheduled wastes shall be treated at prescribed premises or at on-site treatment facility only. Meanwhile, the residuals from treatment of scheduled wastes shall be treated or disposed of at prescribed premises. In supporting to this regulation, CJSB take an action to establish a prescribed premise to safely treat the scheduled wastes.

According **Regulation 8 (Responsibility of Waste Generator)** of the Environmental Quality (Scheduled Wastes) Regulations, 2005 stipulates the following requirement:

- 1) Every waste generator shall ensure that scheduled waste generated are properly stored, treated on-site, recovered on-site for material or product from such scheduled wastes or delivered to and received at prescribed premises for treatment, disposal or recovery of material or product from scheduled waste; and



- 2) Every waste generator shall ensure that scheduled wastes that are subjected to movement or transfer packaged, labelled and transported in accordance with the guidelines prescribed by the Director General.

PETRONAS RAPID is the main waste generator for the development of SWMCJ facility and shall ensure to follow the clause under Regulation 8 to ensure the scheduled waste generated is being treated and disposed at the prescribed premise licensed by the DOE.

**Regulation 9 (Storage of Scheduled Wastes)** of the Environmental Quality (Scheduled Wastes) Regulations, 2005 stipulates the following requirements:

- 1) Scheduled wastes shall be stored in containers which are compatible with scheduled wastes to be stored, durable and which are able to prevent spillage or leakage of the scheduled waste into the environment;
- 2) Incompatible scheduled wastes shall be stored in separate containers and such containers shall be placed in separate secondary containment areas;
- 3) Containers containing scheduled waste shall always be closed during storage except when it is necessary to add or remove the scheduled wastes;
- 4) Area for the storage of the containers shall be designed, constructed and maintained adequately in accordance with the guidelines prescribed by the Director General to prevent spillage or leakage of scheduled wastes into the environment;
- 5) Any person may store scheduled waste generated for 180 days or less after its generation provided that:-
  - a) The quantity of scheduled waste accumulated on the site shall not exceed 20 metric tonnes; and
  - b) The Director General may at any time, direct the waste generator to send any scheduled wastes for treatment, disposal or recovery of material or product from the scheduled wastes up to such quantity as deems necessary.
- 6) A waste generator may apply to the Director General in writing to store more than 20 metric tonnes of scheduled wastes; and
- 7) If the Director General is satisfied with the application made under sub-regulation (6). The Director General may grant a written approval either with or without conditions.

Off-site storage area at CJSB shall be protected by a shelter or a roof. It is also recommended that sealed drums are stored in a safe manner to avoid risk of ballooning or pressure build-up. Waste shall be stored in closed bins or drums away from direct sunlight, wind and rain. Adequate ventilation shall be provided where volatile wastes are stored. Appropriate bins or skips should be provided at suitable locations.

### **3.3.2 Malaysia Scheduled Waste Management Strategy**

The core objective of pollution control and waste management was centred on human health protection and environmental cleanliness. The Environmental Quality Act 1974 is the foundation of almost all the environmental protection and waste management policies in Malaysia. The EQA was enacted in 1974 and came into force in 1975 and has since been amended in 1976, 1985, and 1996 to meet the changing technologies and meet international standards. Hazardous waste management during the boom in the manufacturing sectors was unsuccessful because no regulation was in place till 1989; thus, there were no comprehensive hazardous waste management facilities in Malaysia. Industrial wastes were disposal freely into refuse disposal sites which were unsuitable as destinations for hazardous waste without proper treatment. The improper disposals led to poor air quality near the disposal sites, contamination of ground water, and surface water bodies by chemical and biological agents from the waste dumps/disposal sites causing adverse effects on human health and the environment.

To protect the environment and the health of the citizens, the Sixth Malaysia Plan 1991–1995 clearly defined the policy statement for full integration of environmental concerns into all development processes of the nation with direct focus on sustainable development. As the adverse effects became known, industries began to treat, recycle, and reuse some of their waste materials. The Malaysia Government also stepped up programs to render all scheduled waste harmless by enacting policies for scheduled wastes to be treated at the waste generation point or at specially designed treatment plants following the National Policy on the Environment. This policy, launched in 2002, is aimed at harmonizing economic development goals in line with environmental imperatives following the dictates of the Eight Malaysia Plan. The enforcement of the regulations with some tax rebates to promote compliance and penalties for non-compliance made the industries become active players in waste reduction and recycling.

Hence, Cenviro (Johor) Sdn. Bhd. (CJSB) is taking a crucial attention posed by the legacy of improper management of scheduled waste in Malaysia by developing SWMCJ Project.

### **3.3.3 Waste Management Hierarchy**

Waste management is one of the priority issues concerning protection of the environment and conservation of natural resourced. Poor management of waste led to contamination of water, soil and atmosphere as well as a major impact on public health. Increasing population levels, demand for a better living standard along with rapid urbanization, which increases the generation of waste in the country. In addition, scheduled waste management is very important in safeguarding the environmental and human health. Scheduled waste is a small percentage of hazardous waste that has been regarded for a long time as intractable, or difficult to safely dispose of, without special technologies and facilities.

Scheduled waste management referring to the collection, treatment, and disposal of waste material that improperly handled which can cause substantial harm to human health and safety or to the environment. Scheduled wastes can take the form of solid, liquid, sludge, or contained gases generated primarily by chemical production, manufacturing and other industrial activities. It may cause environmental pollution during inadequate storage, transportation, treatment or disposal operations. Improper scheduled storage or disposal frequently contaminates surface and groundwater supplies. In an effort to remedy existing problems and to prevent future harm from scheduled wastes, governments closely regulate the practice of scheduled waste management.

It has to be reiterated that there will be a serious environmental consequences associated with the improper management of the scheduled waste (as in **Figure 3.2**).



Sungai Gatom, Labis, 2005



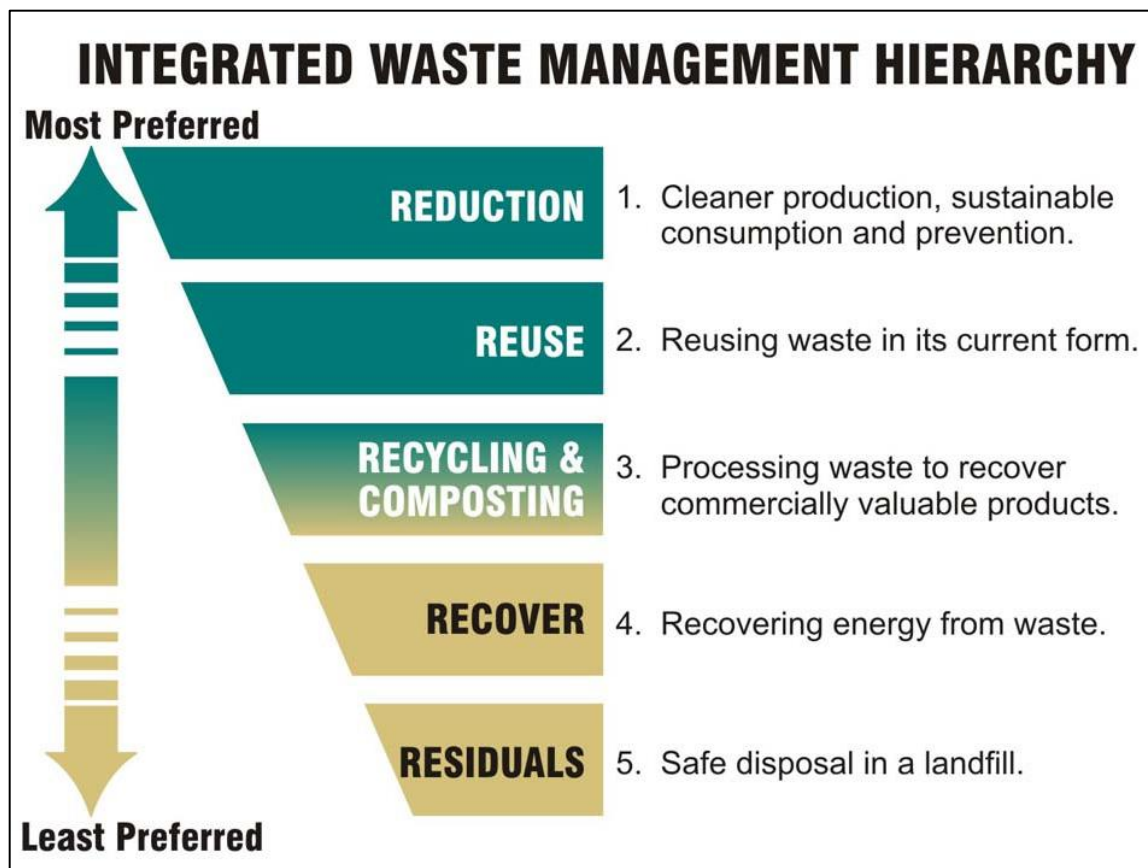
Rawang, 2009

**Figure 3.2: Illegal Scheduled Waste Dumping in Malaysia**

The waste management hierarchy is a nationally and internationally accepted guidance for prioritizing waste management practices with the objective of achieving optimal environmental outcomes. It sets out the preferred order of waste management practices from most to least preferred.

**Figure 3.3** shows the integrated waste management hierarchy. A waste management hierarchy based on the most environmentally sound criteria favours waste prevention or minimization, waste re-use, recycling and composting. In many countries, a large percentage of waste cannot presently be re-used, re-cycled or composted and the main methods are thermal treatment and landfilling. Scheduled waste management will also go through the procedures for storage and labelling.

As highlighted, industrial waste is the major source of scheduled waste in Malaysia, and the nations' approach to scheduled waste management is very well designed and in line with the nation's development plan. The management process is designed such that only licensed operators can handle and treat hazardous waste. Close monitoring of the industries is enforced and sanctions swiftly imposed on erring operators to help keep everyone in line. Zero waste generation is (reduction) concept through thermal treatment process the most sustainable option for Malaysia.



**Figure 3.3: Integrated Waste Management Hierarchy**



Human exposure to substances released at waste management facilities can be acute in case of a serious accident causing short-term exposure to high levels of potentially hazardous substances, ionizing radiation, bioaerosols and dusts. The situation can be chronic when it involved long-term exposure to low concentrations of these substances or radiation. Scheduled waste shall be disposed of at prescribed premises only. Every waste generator shall ensure that scheduled waste generated are properly stored, treated and recovered on-site for material or product from scheduled wastes. The waste generator shall also ensure that scheduled wastes that are subjected to movement or transfer is packaged, labelled and transported in accordance with the guidelines prescribed by the Director General of the Department of Environment (DOE).

Waste management should be understood as a system composed of physical matter, human activities, and links between and within physical matter and human activities. The abandonment, dumping or uncontrolled discharge of waste must be prohibited. The issue of spillages, leakages, corroding container and improper marked labels of scheduled waste must be addressed. To facilitate the proper handling of scheduled waste, information about the hazards associated with the wastes must be communicated through proper labels and should be used by waste handlers. To ensure that the wastes are safely handled, these are kept or stored in suitable containers by the waste generators. It is the responsibility of the waste generators to ensure that scheduled waste is packed based on the composition in a manner suitable for handling, storage and transportation. Incidents associated with incorrect waste management practices, led to public concern about lack of controls, inadequate legislation, environmental and human health impact.

In conclusion, with the **"NO-PROJECT"** options with regard to the development of SWMCJ Project would mean that the disposal of scheduled waste in the country will soon be at halt whereby very limited thermal treatment capacity of the existing players including KASB will not be able to treat future waste generation. A worst situation is when the disposal of scheduled waste will be halted for number of days or weeks or even months if one (1) or two (2) or even all of the thermal treatment plants undergo forced or emergency plant shutdown due to unforeseen circumstances. This illustrates the dire need of such initiatives on the part of the project proponent and thus, the approval of the Proposed Project in this regard, is very crucial and renders the 'no project' option to be irrelevant in this case.