

Second Training Workshop on The Study on the Safe Closure and Rehabilitation of Landfill Sites in Malaysia

25th & 26th May, 2004

**Dewan Kasturi, Institut Tadbiran Awam Negara (INTAN)
Kuala Lumpur, Malaysia**

The two days Second Training Workshop (2nd TWS) on the Study on the Safe Closure and Rehabilitation of Landfill Site in Malaysia was successfully carried out on the 25th and 26th of May 2004 at the Dewan Kasturi, INTAN, Kuala Lumpur. The 2nd TWS was jointly organised by MHLG and the JICA Study Team.

1st Day, 25th May 2004

Morning Session

Opening Ceremony

Welcome Speech by Mr. Hisashi Yamauchi, JICA Team Member

The 2nd TWS began with the welcome speech by the Co-Chairman of the Organising Committee and JICA Study Team Leader, Mr. Hisashi Yamauchi. The Co-Chairman welcomed Y.Bhg Dato' Mohamad Bin Saib, En. Huszian Husin, Mr. Hitoshi Ara, and the participants to the 2nd TWS. Mr. Yamauchi expressed his gratitude to Y.Bhg Dato' Mohamad Bin Saib for officiating the opening ceremony for the Second Training Workshop on The Study on the Safe Closure and Rehabilitation of Landfill Sites in Malaysia.

Mr. Yamauchi explained that the 2nd TWS was jointly organised by MHLG and JICA, and was carried out as part of the activities of the Study on the Safe Closure and Rehabilitation of Landfill Sites in Malaysia. The objectives of the study were to reduce the health hazards and environmental pollution, preparation of the database for the landfill sites, technology transfer and capacity building, and the development of the action plan to be implemented by 2010. Mr. Yamauchi further explained that the Study was in 2 phases. Phase 1 was carried out from January 2003 to June 2003, covering the basic survey and data collection exercises. The Phase 2 activities started in July 2003 and shall be completed by October 2004. The activities included the preparation of the safe closure guidelines, the formulation of the action plan, and the implementation of the pilot projects. The study was not only confined to the technical aspects but also to highlight on how to implement the safe closure of landfills by tanking into consideration of the institutional, legal and financial aspects.

Mr. Yamauchi then presented and explained the 2 days programme for the 2nd TWS. The second day's programme includes the group discussion sessions and the video conferencing via JICA Net.

Opening Address by Y.Bhg Dato' Mohamad Bin Saib, Director General, MHLG

Y.Bhg Dato' Mohamad expressed his thanks to be invited to officiate the opening of the 2nd TWS. Dato' Mohamad expressed his concern on the grave situation in Malaysia's solid waste disposal system, especially with regards to the uncontrolled dumping, environmental impact and affects to our health. Dato' was also concerned on the lack of prescribed procedures and know how on how to operate, manage or close the landfill safely and effectively. Dato hoped that the outcome of the study, the production of the guidelines and knowledge gained will eventually educate the operators of landfills on the proper management techniques.

Y.Bhg Dato' Mohamad ended his address by declaring the 2nd TWS session opened.

TWS Presentation No.1

Guideline for Safe Closure and Rehabilitation of Landfill Sites by Mr. Kohshi Takahata.

Mr. Takahata presented the overview of guideline for landfill safe closure. The contents were the scope of guideline, processes of safe closure, post closure management and issues for further discussions.

Outline of Q&A of this Session No.1 is as follows.

Y.Bhg Dato' Mohamad raised the question whether landfill gas utilisation for power generation can be implemented. Mr. Takahata replied by stating that the main purpose of safe closure is to close the landfill site in a safe manner. Mr. Takahata further stated that the amount of gas generated and the migration are unpredictable, hence it may be difficult to control or harness sufficient gas for power generation. However, if funds are available then *suitable tests may be carried out to determine the amount of gas that may be extracted.* As for the safe closure works, it is advisable to install gas vents pipes to vent the gas to atmosphere.

TWS Presentation No.2

Action Plan for Safe Closure of Landfill Sites in Malaysia by Mr. Hiroshi Abe.

Mr. Abe presented the summary of the action plan together with the proposed target sites, the total cost of implementation and the schedule.

Outline of Q&A of this Session No.2 is as follows.

During the presentation, questions were raised concerning how many years should the Post Closure Management be carried out and how much funds to allocate for PCM operations. Mr. Abe replied by stating that the stabilisation period is dependent on the individual site, how it was operated initially and how it was closed. Hence it is not possible to put an actual time period. Regular monitoring activities are essential to determine the condition of the closed landfills.

Another question was raised concerning the registration of the older closed landfill sites on whether there is a guideline to recommend how far back in history should the authorities

search and register these sites. On behalf of Mr. Abe, Mr. Riad replied that the present survey of landfill sites by the Jica Study Team was carried out based on known operating or closed landfill sites. Such information was provided by the LAs and by MHLG. However, as suggested by Puan Kamariah Mohd Noor, the registration should only be for the dumping grounds / landfills that were present from the day the Local Authority was established, and it is not necessary to revert too much back to past history as information may not be available.

To reply to the question about the structure of the proposed funding system, Mr. Abe stated that some sort of national fund should be set up at MHLG to subsidy for the closure works. An additional fee should be charged in the tipping fee to cater to the fund. Y.M Ungku Azman added that since the allocation of funds is a concern of the Federal Government, the Federal Government will have to come up with the funding system.

Y.M. Ungku Azman further commented that the Solid Waste Management will be privatised soon and some activities presently under the jurisdiction of the States and LAs will be passed to the Federal Government control. His question was whether the registration system should also be under the Federal Government control. Mr. Abe replied that since land matters are the responsibility and control of the State Governments, the State should maintain and carry out the registration system.

TWS Presentation No.3

Physical Closure and Post Closure Management by Mr. Mahmoud Riad.

Mr. Riad presented the overview of physical closure & post-closure management. The presentation included the definition of safe closure levels, the estimates of safe closure requirements, the progress of the pilot projects, and the post closure management activities

Outline of Q&A of this Session No.3 is as follows.

In reply the question on what should be done to the sites identified to have low priority, i.e. the Group C and D categories, Mr. Riad informed that for such sites, when the environmental potential and land use potential are both low, they should be just left as is after closure but such sites must be registered and identified as closed landfills. However, if in the future, the priority status may be changed, i.e. if the landuse potential is increased, then rehabilitation works may be necessary.

With reference to the closure levels, Puan Kamariah Mohd Noor commented that the guideline should recommend that highest closure level 4 should always be specified and targeted. Mr. Riad replied stating that ideally all sites should target and close to Closure Level 4, however achieving such high closure level will incur high cost. If the closed site is considered to have a low priority and low environmental potential, then it may not be necessary to spend so much money on the closure work, and the funds should be diverted to the higher priority sites.

TWS Presentation No.4

Environmental Monitoring on Landfill Safe Closure by Mr. Munehiro Fukuda

Mr. Fukuda presented the overview and report on the environmental monitoring with emphasis on the role of monitoring, the methodology, the quality control / quality assurance and the data evaluation / management action.

Outline of Q&A of this Session No.4 is as follows.

In replying to the question on how much time must be allocated for the preparation for the monitoring exercise, Mr. Fukuda stated that generally one day is sufficient to collect the field samples. However, the supporting information such as obtaining the map of the area, the topographical survey, geological survey and hydrological survey may take some time. The maps may be obtained from the relevant governmental departments. Laboratory testing of the samples will also take some time.

In response to the question on how long will the monitoring needs to be continued and when can the closed landfill be re-utilised, Mr. Takahata explained that the purpose of the monitoring works is to determine the progress and condition of the stabilisation process. If the landfill site stabilised much earlier, then monitoring frequency may be reduced. However, if the land is to be utilised, there is not restriction on the utilisation provided suitable countermeasures are provided to address the environmental impacts. So, there is no time limit for the monitoring and it should be carried out as long as it is necessary, at least until the results shows improvement and are within the prescribed safe environmental limits.

1st Day, 25th May 2004

Afternoon Session

The afternoon session started after the lunch break with a site visit to the Ampang Jaya Pilot Project site. At the site, the participants were shown around the Pilot Project works and explanations were provided by members of the JICA Study Team.

2nd Day, 26th May 2004

Morning Session

Group Discussion Session 1

Topic: Guideline for Safe Closure and Rehabilitation of Landfill Sites

The Group Discussion Session 1 involved all the participants and they went through the Guideline for Safe Closure and Rehabilitation of Landfill Sites, line by line.

The comments and issues raised were discussed and are presented in the attached "Discussion Session 1" in **Appendix 1**.

Group Discussion Session 2

Topic: Planning of Safe Closure of Landfill Sites

For the Group Discussion Session 2, the participants were divided into 3 groups.

Group 1 presented their slides on the “Action Plan for Safe Closure of Landfill Sites in State of Kedah”. Output of the group 1 discussion is attached in **Appendix 2**.

Group 2 presented their slides on “Planning of Safe Closure of Landfill Sites Negeri Sembilan”. Output of the group 2 discussion is attached in **Appendix 3**.

Group 3 presented their slides on “Action Plan Formulation for Terengganu State”. Output of the group 3 discussion is attached in **Appendix 4**.

2nd Day, 26th May 2004

Afternoon Session

Presentation of Group Work via Video Conferencing by JICA.net

The video conferencing was held at the JICA.net room at INTAN between participants from the 2nd TWS and participants from JICA Tokyo.

At the INTAN side, the session was co-chaired by Y.M. Engku Azman Tuan Mat (MHLG), Mr. Hitoshi Ara (JICA Malaysia) and Mr. Hisashi Yamauchi (JICA Study Team Leader). At the Tokyo side, the session was chaired by Mr. Ryosuke Kojima (JICA Headquarters), Mr. Taisuke Watanabe (Institute of International Cooperation, JICA), Mr. Ikuo Takekawa and Mr. Takuya Murata (both from JICA Headquarters).

The first presentation was by Mr. Koh Chee Yong (MHLG) on the comments and issues raised during the Discussion Session 1. The topics discussed were on i.) the role of the Federal Government, State Governments and the Local Authorities, ii) the regulatory framework, iii) PCM period, iv) funding system, and v) the general comments. (Refer to **Appendix 1**).

The INTAN side then presented the Group Works in the order as follows

- i. Group 3 : “Action Plan Formulation for Terengganu State”.
Presented by En. Azdan Ashari (Alam Flora Sdn Bhd)
- ii. Group 2 : “Planning of Safe Closure of Landfill Sites Negeri Sembilan”.
Presented by En. Mohd Zaki Othman (MHLG)
- iii. Group 1 : “Action Plan for Safe Closure of Landfill Sites in State of Kedah”.
Presented by Pn. Kamariah Mohd Noor (E-Idaman Sdn Bhd)

The presentations were followed by brief discussion between the INTAN side and the Tokyo side. Outline of the discussion is as follows.

In replying the question by the Tokyo side concerning the responsibilities of the relevant

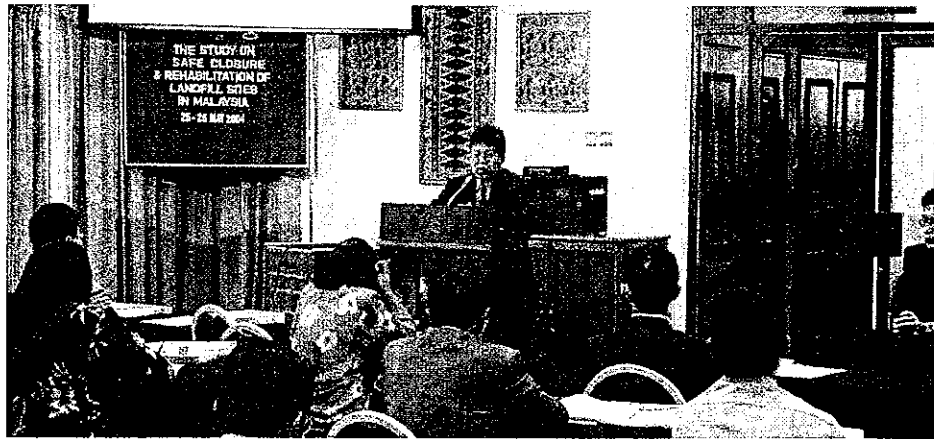
authorities, Y.M Engku Azman replied that since all land matter are the responsibility of the State Government, the allocation of land for landfill is controlled by the State. But since the Federal Government, i.e. MHLG, DOE, EPU, etc, are responsible for the funding, and environmental aspects, the Federal Government is responsible for the overall decision and control of the Landfill projects. Nevertheless, the Federal Government will work closely with the State Governments, and the LAs to ensure that landfill will be operated and closed properly.

With reference to the Action Plan, Pn. Fadzilah Bte Mohd Said, MOF, commented that the Action Plan needs to be more described further, perhaps with the inclusion of block diagrams and schedule stating the step necessary to be taken for each site. Since the Federal Government is suppose to set up a funding system, the Ministry of Finance will need to know what and how the funds will be spent and when the funds is required.

With reference to the overall discussion on the JICA Study as a whole, Mr. Yamauchi requested MHLG to compile a list of questions and quarries so that the JICA Study Team can look inot the matters and provide necessary amendments to the Study Reports, especially to the Progress Report 2 that was submitted to MHLG recently. MHLG is to provide the comments by June 2, 2004. In reply to this, MHLG stated that they are in the midst of reviewing the reports and will comment accordingly.

With no further comments or questions, the 2nd day activities ended the 2 days 2nd TWS with a thank you address by Mr. Hitoshi Ara.

4. Second Training Workshop on the Study on the Safe closure and Rehabilitation of Landfill Sites in Malaysia



Opening Address by Y.Bhg Dato' Mohamad bin Saib



*Participants to the 1st Day Session of the 2nd Workshop
Dewan Kasturi, INTAN, Kuala Lumpur*



2nd Day : Group Discussion – Group 1



2nd Day : Group Discussion – Group 2

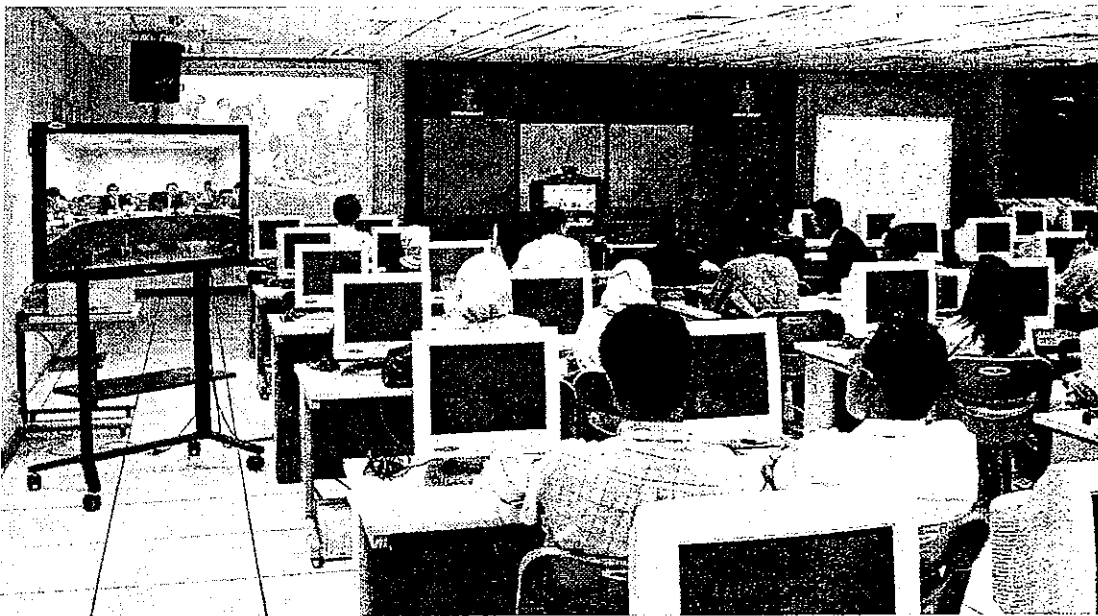


2nd Day : Group Discussion – Group 3

4. Second Training Workshop on the Study on the Safe closure and Rehabilitation of Landfill Sites in Malaysia



2nd Day: Video Conferencing via JICA.net



JICA.net Video Conferencing Room

2ND WORKSHOP ON THE STUDY ON THE SAFE CLOSURE AND REHABILITATION OF LANDFILL SITES IN MALAYSIA

1st Day: May 25th 2004 (Tuesday)

08:00 – 09:00	Registration
09:00 – 09:40	Opening Remarks <i>1. Welcome Speech by Mr Hisashi Yamauchi, JICA Team Leader, Co-Chairman of Organising Committee</i> <i>2. Opening Address by Y.Bhg Dato' Mohamad b. Saib Director General, Local Government Department Min. of Housing and Local Government, Malaysia</i>
09:40 – 10:00	Tea Break
10:00 – 10:40	Guideline for Safe Closure and Rehabilitation of Waste Landfill Sites <i>Mr. Kohshi TAKAHATA, JICA Study Team Member</i>
10:40 – 11:10	Action Plan for Safe Closure of Landfill Sites in Malaysia <i>Mr. Hiroshi ABE, JICA Study Team Member</i>
11.10 – 11.40	Q and A Session
11:40 – 12:10	Physical Closure and Post Closure Management of Landfill Sites <i>Mr. Mahmoud RIAD, JICA Study Team Member</i>
12:10 – 12:40	Environmental Monitoring on Landfill Safe Closure <i>Mr. Munehiro FUKUDA, JICA Study Team Member</i>
12.40 – 13.00	Q and A Session
13:00 – 14:00	Lunch Break
14:00 – 17.00	Site Visit to Ampang Jaya Pilot Project

2nd Day: May 26th (Wednesday)

09:00 – 11:00	Group Discussion Session 1 <i>Topic: Guideline for Safe Closure and Rehabilitation of Landfill Sites</i>
11.00 - 11.30	Tea Break
11.30 – 13.00	Group Discussion Session 2 <i>Topic: Planning of Safe Closure of Landfill</i>
13.00 – 14.00	Lunch Break
14.00 – 16.00	Presentation of Group Work via Video Conferencing by JICA.Net
16.00	Closing and refreshment.

APPENDICES

Appendix 1

Comments and Issues Raised in “Discussion Session 1”

The Main Topics Discussed were as follows

1. Role of FG, SG and LA
2. Regulatory Framework
3. Post closure management period
4. Funding system
5. General Comments

1. Role of FG, SG and LA

- 1.1 Main purpose of Guideline should be “Protection of public health and the environment”. This should allocate a larger role for the FG.
- 1.2 State governments present monitoring role to be expanded (incl. registration, etc.).
- 1.3 In principle FG and SG representatives present agreed to expanded role for SG through reinforcement of SG technical staff and setting up of proposed committee.
- 1.4 LA assumption of “illegal dump site” responsibility should consider size of the site and whether the site is owned by the government.
- 1.5 Clarity on roles of each of SG, LA and operators should be clearly defined.
- 1.6 Committee members should come from related departments of FG, SG and LA

2. Regulatory Framework

- 2.1 All relevant regulations, including land laws need to be reviewed
- 2.2 Legal framework proposed by the Study should be discussed by GOM taking into consideration other measures under consideration such as federalization and privatization.

3. Post Closure Management Period

- 3.1 Explanation on Post Closure Use needs to identify how long monitoring should continue rather than stating 10 years.
- 3.2 Suggestion to make a mandatory period for maintenance (say 5 years) for all sites.
- 3.3 Post closure land utilization before 10 years from closure has passed should be done very carefully.
- 3.4 PCM period required should be site specific and may consider proposed land use development if any.
- 3.5 Request to introduce indicators adopted by other countries to assist authorities in deciding on time period after which land use is developed for reference

4. Funding System

- 4.1 Decision on Federal Govt. allocation of funds is all pending approval of the GOM higher levels.
- 4.2 Contract with private operators may include closure to be done by operators thereby making them responsible for funding.
- 4.3 For new sites tipping fees shall include portion for safe closure but FG fund allocation is required for safe closure of closed and operating sites.
- 4.4 Preparation of fund at one shot may be difficult. Present environmental fund should be referred to.
Ans. Report prepared by Study introduces funding systems employed in Japan, the US and Denmark as reference.
- 4.5 Funding proposed in Kyoto Protocol may be difficult to implement here.

5. General Comments

- 5.1 MHLG has the policy that all new landfills will be sanitary landfills. Therefore automatically level C4 closure will be applied. This Guideline applies more directly to landfills already closed or in operation.
- 5.2 Definitions on closure levels and operation levels need to be as precise as possible to be understood by all users of the guideline
- 5.3 Too many training courses by MHLG raises concern about lack of manpower at that ministry to absorb the training.
- 5.4 Comments in this work shop maybe be reflected in the Draft FR.
- 5.5 Guideline also covers new landfills for which safe closure should be implemented considering this Guideline
- 5.6 Definition for illegal dump sites required
- 5.7 Report editing and formatting should be easily read and in conformity

Appendix 2

Group 1 presentation, “Action Plan for Safe Closure of Landfill Sites in State of Kedah”

1. Landfills in State of Kedah.
 - MD Padang Terap (Closure level : C3) –Year 2004
 - MD Kubang Pasu (Closure level : C3) –Year 2005
 - MP Kota Setar (Closure level : C3) –Year 2009Notes : Closure level C3: Middle closure level final cover, drainage system, control slope, dike, control of gas and leachate recirculation. (Guideline for safe closure & Rehabilitation of landfill sites in Malaysia, year 2004.
2. Purpose of the PC & PCM
 - To prevent public health and environment by proper management of landfill safe closure & post closure such as fires, nuisance, surface & ground water pollution etc.
3. Physical Closure Plan & Post Closure Management
 - Information/Data of landfill sites
 - Detail investigation of sites
 - Soil Cover
 - Final Compaction
 - Closure works with environmental countermeasure
 - Site Inspection & Maintenance
 - Environmental Monitoring
4. Other issues
 - Scavengers
 - Residential areas nearby
 - Capability of local consultants/contractor
 - Human resource
5. Proposed Work Schedule – MD Padang Terap Landfill
 - Jun 2004 – Planning of PC & PCM
 - Closure level : (Level C3)
 - Technical Proposal (Jun – July 2004) PC & PCM.
 - Financial Proposal (August 2004)
 - CAPEX: RM 747,925
 - OPEX: RM 96,320/year
 - Source of funding: Federal/State Government
 - Owner: Local Authorities
 - Contractor: Tendering
 - August 2004 – Committee in State Government
 - October 2004 – Approval of project
 - October 2004 – Stop receiving waste & Project started.
 - December 2004 – Project completed
 - Jan 2005 - PCM
6. Proposed Work Schedule –MD Kubang Pasu
 - Jun 2005 – Planning of PC & PCM
 - Closure Level : C3
 - Technical Proposal (Jun – July 2005) PC & PCM
 - Financial Proposal (August 2005)
 - CAPEX: RM 1,303,017
 - OPEX: RM 142,081/year
 - Source of funding: Federal/State Government
 - Owner: Local Authorities

4. Second Training Workshop on the Study on the Safe closure and Rehabilitation of Landfill Sites in Malaysia

- Contractor: Tendering
- August 2005 – Committee in State Government
- October 2005 – Approval of project
- October 2005 – Stop receiving waste & Project started.
- December 2005 – Project completed
- Jan 2006 - PCM

7. Proposed Work Schedule – MP Kota Setar

- Jun 2009 – Planning of PC & PCM
- Closure Level: C3
- Technical Proposal (Jun – July 2009) PC & PCM
- Financial Proposal (August 2009)
 - CAPEX: RM 2,483,716
 - OPEX: RM 244,781/year
 - Source of funding: Federal/State Government
 - Owner: Local Authorities
 - Contractor: Tendering
- August 2009 – Committee in State Government
- October 2009 – Approval of project
- October 2009 – Stop receiving waste & Project started.
- December 2009 – Project completed
- Jan 2010 - PCM

8. Financial Allocations (RM)

Year	MD Padang Terap		MD Kubang Pasu		MP Kota Setar	
	CAP	OP	CAP	OP	CAP	OP
2004	747,925	96,320	-	-	-	-
2005	-	96,320	1,303,017	142,081	-	-
2006	-	96,320	-	142,081	-	-
2007	-	96,320	-	142,081	-	-
2008	-	96,320	-	142,081	-	-
2009	-	96,320	-	142,081	2,483,716	244,781
2010	-	96,320	-	142,081	-	244,781

Notes: PCM will be continued for the next 10 years after PC

Appendix 3

Group 2 presentation, “Planning of Safe Closure of Landfill Sites Negeri Sembilan”

1. **MP NILAI**
 - Name of site : Kuala Sawah
 - Area : 10.12 hec
 - Year end : 2003
 - Closure Level : C3
 - CAPEX : RM 2,294,631.00
 - OPEX : RM 244,213.00 / year

2. **Action Plan**
 - Data collection by Local Authorities
 - Determine closure level – topography/soil survey
 - Design concept
 - Cost estimate
 - Environment database
 - Tender
 - Design approval
 - Implementation
 - Monitoring

3. **Process Of Landfill Safe Closure**
 - The operator/owner should assess their respective sites in order to clarify the environmental pollution potential and land use potential.

 - After the approval of SC by State of Government, operator/owner of landfills will implement the physical works and post closure management activities.

Appendix 4




Group 3 presentation, "Action Plan Formulation for Terengganu State".

1. Assumption for action plan
 - Policy for safe closure approved.
 - Funding available.
 - Implementation body at state level should have set up, which includes local authority
 - Activity for closure and rehabilitation should based on guideline proposed.

2. Comments
 - Selection of closure based on environment risk and land value potential.
 - Detail schedule to be adjusted for local need and condition (climate, etc.)

3. Action Plan Schedule

Site	Group	Level	2004	2005	2006	2007	2008	2009	2010
Fikri	CL-C	2							
closed				20,820	395,585	57,605	57,605	57,605	57,605
Wakaf Toh Keh	CL-C	2							
closed					44,153	838,913	96,252	96,252	96,252
Tok Jembal	CL-C								
closed				87,559	1,663,629	168,146	168,146	168,146	168,146
Kubang Ikan	OP-A	3							
will close 2004			241,191	4,582,630	441,755	441,755	441,755	441,755	441,755
Mak Cili Paya	OP-C	2							
will close 2007					54,405	1,033,694	113,232	113,232	113,232
Gelugor	OP-C	2							
will close 2007					107,969	2,051,418	201,951	201,951	201,951
CAPEX			241,191	4,691,010	2,265,741	3,924,024	0	0	0
OPEX			0	0	441,755	667,506	1,078,941	1,078,941	1,078,941
TOTAL			241,191	4,691,010	2,707,496	4,591,530	1,078,941	1,078,941	1,078,941

 Design stage
  Physical Closure
  PCM

Data Book 2

Lists of Landfill Sites in Malaysia

**STATUS AND INFORMATION OF OPERATING LANDFILL SITES UNDER
THE LOCAL AUTHORITIES (LAs)
(LA Feedback until January 2003)**

No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
JOHOR							
1.	MP Batu Pahat	Jln. Kg. Bukit Kelicap	0	- no information			
2.	MP Kluang	Km. 7, Jln Johor Tenggara, Kluang	0	4.5	120	10	7
3.	MP Muar	Lot PTD 4007, Jln Kebun Sayur, Bukit Bakri	3	14.8	300	1	0.5
4.	MD Labis	Jalan Temayor	0	2.4	30	8	3
5.	MD Yong Peng	Batu 1, Jln. Labis, Yong Peng	0	3.2	8.3	3 to 5	1
		KM. 2 Jalan Sri Pasir Sri Medan	0	2.0	10	5	1
6.	MD Kota Tinggi	PTD 7678, Mukim Kota Tinggi.	1	13.8	57	1	0.5
7.	MD Pontian	Jalan Sawah, Pekan Nanas, Pontian	1	4.9	30	4	4
		Jalan Rimba Terjun , Pontian	1	6.5	80	full	0.5
		Sanglang, Pontian	1	2.0	12	2	2
8.	MD Segamat	Lot PTD 1278, Mukim Sg. Segamat	1	3.2	90	full	0.1
		PTD 6605, Jalan Sengkang, Jementah	0	0.8	10	15	5
9.	MB Johor Bahru	Jalan Tahana, Tampoi Industries.	1	21.0	500	closed	0.5
10.	MD Tangkak	Jalan Bolading, Bekoh	1	2.8	10	1.5	3.5
		Bt. 12, Jalan Sengkang, Bukit Gambir	2	0.6	9	30	1.5
11.	MP Johor Bahru Tengah	Jalan Kota Tinggi, Banfoo	0	- no information			
12.	MD Kulai	Batu 23, Jalan Ayer Hitam	2	6.1	250	15	2
13.	MD Simpang Renggam	PTD 1009, Ladang CEP 1, Renggam	0	3.2	15	2	2
14.	MD Mersing	Jln. Sekakap, Sri Pantai, Mersing	0	4.9	28	12	3
		Jalan Kolam air, Jemaluang	0	4.0	5	12	3
		Jalan Pianggu Lama, Endau	0	4.9	18	10	4
MELAKA							
1.	MD Jasin	Kesang Pajak, Jasin	2	9.2	65	8	0.3
2.	MD Alor Gajah	BT. 1, Jalan Tampin	0	0.8	150	2	1
		Kg. Air Molek-Masjid Tanah Melaka.	0	40.5	100	3	no information
3.	MPMBB	Krubong Landfill Site	3	23.6	750	9	5
NEGERI SEMBILAN							
1.	MD Jempol	Jalan Kok Foh, Rompin	0	4.4	45	10	5
2.	MD Tampin	Kampung Asahan, Gemencheh	0	2.0	16	10	1
		Ulu Gemas.	0	12.1	16	60	5
		Batu 5, Kampung Keru	1	24.3	26	100	0.8
3.	MD Port Dickson	Bukit Palong, Lukut	0	26.2	45-60	10	no information
4.	MD Kuala Pilah	Kampung Ulu Maasop, Senaling	0	8.1	50	20	0.25

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No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
5.	MP Seremban	KM 9, Jalan Sikamat, Seremban	1	5.3	300-310	0.8	1.5
NEGERI SEMBILAN							
7.	MP Nilai	Pajam, Mantin	1	28.3	80	20	3
8.	MD Jelebu	Sg. Muntuh, Jiti Jerebu	0	4.0	54	30	2
		Batu 17, Pertang	0	1.6	30	5	3
SELANGOR							
1.	MD Kuala Langat	Batu 17, Sg. Sedu, Banting	1	2.5	110	1	0.1
2.	MP Shah Alam	WWL, Air Itam, Puchong	4	20.2	300	25	20
3.	MD Sepang	Ampar Tenang	1	2.0	45	5	7
4.	MD Kuala Selangor	Kubang Badak, Jln Raja Musa, Btg Berjutai	3	1.2	60	2	0.5
5.	MP Klang	Telok Kapas, Bandar Sitan Sulaiman.	2	17.8	350	1.5	1
6.	MP Petaling Jaya	WWL, Air Itam Puchong	4	- no information			
7.	MD Sabak Bernam	Lot 280 dan 281, Jalan Panchang Bedena	4	9.6	100	20	2
8.	MD Hulu Selangor	Hulu Yam Bahru.	1	10.1	350	20	1.5
		Kerling	1	6.1	120	20	2
		Bukit Beruntung	1	10.1	250	20	1.5
9.	MP Ampang Jaya	WWL, Air Itam Puchong	4	- no information			
10.	MP Subang Jaya	WWL, Air Itam Puchong	4	- no information			
11.	MP Kajang	TP Sementara Sungai Kembong, Beranang	1	16.2	no information	5	no information
12.	MP Selayang	TP Pelupusan Kundang, Batu 23, Jln Batu Arang, 48000 Rawang, Selangor	1	20.2	600	15	1
PERAK							
1.	MB Ipoh	BT. 8, Jalan Bercham, Tanjung Rambutan	2	48.6	500	2	1
2.	MD Gerik	Jalan Air Ganda	0	14.2	15.5	20	3
3.	MD Kerian	Jalan Dennistown, Parit Buntar	0	0.8	100	1.5	2
		Lot 2720 Pematang Pasir, Beriah	0	2.0	20	10	14
4.	MD Kinta Barat	Batu 3, Jalan Tanjong Tualang.	1	24.3	35-40	8 to 10	1
5.	MD Kinta Selatan	Batu 231/2, Jalan Kuala Dipang Sg. Siput	2	26.7	45	25	2
6.	MD Kuala Kangsar	Sungai Siput	1	33.2	148	3	4
7.	MD Lenggong	Air Kala, Lenggong	0	1.5	30	5	2
8.	MD Manjung	Sungai Wangi, Sitiawan	1	10.1	120-140	no information	2
		Pulau Pangkor.	1	2.0	8 to 10	2	4
		Pantai Remis	1	1.2	4 to 8	2	2
9.	MD Pangkalan Hulu	Jalan Klian Intan	1	4.0	8	5	1
		Bukit Hulu	0	4.0	3	no information	no information
10.	MD Perak Tengah	-no feedback					
11.	MD Selama	Kg. Lampin, Jalan Taman Merdeka.	0	4.0	7 to 10	2	0.5

No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
PERAK							
12.	MD Tanjung Malim	-no feedback					
13.	MD Tapah	Batu 4, Jalan Besar Tapah-Bidor.	0	4.9	10	5	0.5
14.	MD Taiping	Tapak pelupusan sampah Matang.	3	10.1	200	5	10
15.	MD Hilir Perak	KM12, Jalan Bidor, Teluk Intan	2	3.2	145	5	6.4
		Pekan Jenderata, KM10 Jalan H.Melintang	0	0.4	16	1	1
		Pekan Bagan Datoh	0	1.2	15	5	0.5
KEDAH							
1.	MD Baling	Kampung Ceneri, Kuala Pegang.	1	4.5	75	20	1
2.	MD Bandar Baharu	Kg. Bukit Buluh, MK. Serdang	0	1.6	12	5	1
3.	MD Langkawi	- no feedback					
4.	MD Kubang Pasu	KM 15, Paya Kemunting, Jln Changlon, Jitra	4	2.0	100	10	0.75
5.	MD Kota Setar	Bukit Tok Bertandok, Mukim Jabi, Daerah	2	10.1	200	25	3
6.	MD Yan	Lot 3440, Jln Junun Mukim Sala Besar	2	0.4	30	10	1
7.	MD Padang Terap	Jalan Padang Sanai, Kuala Nerang	0	1.4	24	no information	no information
8.	MD Kulim	Lot 1002 & 1003 Mukim Padang Cina, Kulim	2	8.9	148.5	10	2
9.	MD Pendang	Kg. Tok Sedau, Mukim Padang Peliang	0	7.3	48	15	0.8
10.	MD Sik	Kg. Sungai Siputih, Sik	1	2.0	5	15	3
11.	MP Sungai Petani	Kg. Semeling	2	38.9	250	10	0.5
PULAU PINANG							
1.	MP Pulau Pinang	Jalan Jeti Jelutong Landfill Site	2	50.0	600	20	1
2.	MP Seberang Perai	Pulau Burung, Nibong Tebal	3	61.5	800	25	5
PERLIS							
1.	MP Kangar	Pekan Kuala Perlis, 02000 Kuala Perlis	4	4.0	90-100	15	1
PAHANG							
1.	MD Lipis	KM 8, Jalan Cheneras	1	8.9	28.5	9	3
2.	MD Jerantut	Kg. Mat Kilau	2	4.4	25	no information	1.5
3.	MP Kuantan	KM 1 Jalan Jabor- Jerangau	3	24.3	400	2	1.5
4.	MD Rompin	Kg. Feri, Kuala Rompin	1	5.9	15	25	1
5.	MD Bentong	Chamang, Betong Landfill site	0	2.4	80	5	7.00
		Sungai Sematut	3	3.6	tutup	full	7.00
6.	MD Pekan	Jalan Pekan-Nenasi	0	22.6	30	15	14
7.	MP Temerloh	Ulu Tualang Temerloh	3	no information	200	2	2

No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
PAHANG							
8.	MD Maran	KM 3, Jalan Kuala Sentul	1	1.7	18	3	2
		Jalan Jenka 10, Bandar Jenka	2	8.0	8.8	4	3
9.	MD Cameron Highland	Batu 34, Jalan Tapah-Tanah Rata	0	0.2	28-30	5 to 6	2
10.	MD Raub	KM12, Jalan Cheroh	4	2.0	38.32	5	-
		KM12, Jalan Sungai Klau Raub	0	4.4	3	4	10
11.	MD Bera	Chuat, Kerayong	0	24.3	20.05	no information	7
TERENGGANU							
1.	MD Marang	Batangan Marang.	1	2.5	18	1	1
2.	MD Setiu	Kampung Air sejuk	4	5.5	16	10	1
3.	MD Dungun	Bukit Lat, Kg. Serdang, Mukim Kumpal	0	1.4	80	50	2.3
		KM 4, Jalan Santong, Paka, Dungun	0	2.2	30	30	2
4.	MP Kuala Terengganu	Kampung Kubang Ikan, Chendering.	1	13.3	70-90	15	2
5.	MD Besut	Kg. Paya Rawa, Kg. Raja.	2	4.9	58	10	1
6.	MD Hulu Terengganu	Batu 22 Jln Kuala Terengganu, Kuala Berang	1	9.5	25	10	1
7.	MD Kemaman	Bukit Takal, Mak Chili, Kemaman	1	no information	400	5	0.2
KELANTAN							
1.	MD Pasir Puteh	Bukit Gedombak, Pasir Puteh, Kelantan	1	2.0	32	15	2
2.	MD Machang	Kg. Pertok, Jalan Temangan	0	1.2	30-40	no information	8.5
3.	MD Bachok	Kg. Sungai Gali, Beris Lalang, Telong, Bachok	0	4.5	10	7	1
4.	MP Kota Bahru	Kg. Telok Kitang, Tebing Tinggi, Sabak	2	19.0	200	3 months more	0.5
5.	MD Pasir Mas	- no feedback					
6.	MD Tumpat	Kampung Kok Bedollah.	0	20.2	45	50	0.1
7.	MD Kota Bahru	Bukit Pak Dogol, Kok Lanas, Jalan Kuala Krai	0	2.8	60	5	1
8.	MD Gua Musang	KM 10, Jalan Gua Musang	0	6.1	10	8	2
9.	MD Tanah Merah	Batu 4, Bukit Che'Rose Tanah Merah	0	6.1	-	5	1
10.	MD Kuala Krai Utara	Jalan Dusun Damar	0	0.4	15	2 to 3	5
11.	MD Jeli	Kg. Sungai Mekong	0	3.4	10	10	5
12.	MD Kuala Krai Selatan.	Jalan Dabong-Kemubu, Dabong	0	0.2	2	3	3
		Jalan Sam-Pasir Linggi, Sg. Sam	0	1.2	5	10	5
SARAWAK							
1.	DB Kuching Utara	Batu 8 1/2, Jalan Matang	1	7.9	100	20	20
2.	MD Lawas	KM7, Jalan Kuala Lawas	0	0.1	6.9	16	3

No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
SARAWAK							
3.	MD Maradong	Lot 182, Meradong Land District, KM9,	0	1.2	18	5	1
	dan Julau	Jalan Kelupu, Bintangor					
		Lot 72, Block 6, Jikang L.D Julau	0	0.8	8	60	1
		KM 3, Pakan Wuak Road, Pakan Subdistrict	0	0.0	4	60	1
4.	MD Samarahan	Kg. Plaie, 94300 Kota Samarahan	0	2.3	15	20	2
5.	MD Marudi	Jalan Limbang, Marudi	1	1.0	20	25	0.25
6.	MD Limbang	Lot 1129, blok 12, Pandamaran land	0	4.3	30	10	1
		District, Limbang					
7.	MD Sibul	Batu 26, Jalan KJD, Sibul	0	0.6	no information	no information	1
8.	MP Miri	Tudan, 17th km Miri-Kuala Baram Road, Miri	1	11.1	120	expired	0.5
9.	MD Saratok	Perabun, Seratok	0	2.0	20-25	20	3-5
		Panjang, Roban	0	0.8	6-12	10	1
10.	MD Sarikei	Km 4, Jln Kerubong, Selalang.	1	4.0	15	20	2
		Kpg. Jerijih, Belawai	1	4.0	3	20	3
11.	MD Simunjan	Km 8, Jalan Simunjan	1	0.8	- no information		
12.	MD Serian	Bt.8 Jalan Serian/Sri Aman, Serian	1	5.3	25	30	0.5
13.	MB Kuching Selatan	Bt.8, Jalan Matang, Matang, Kuching	1	7.9	350	20	0.6
14.	MP Sibul	Jalan Kemuyang, Sibul Sarawak	2	13.6	80	10-15	2
15.	MD Bau	Lot 227, Block 9, Senggi Poak, land district	0	2.3	25-30	10	1
16.	MD Betong	Betong	0	0.4	10	full.	0.3
		Pusa Landfill Site	0	1.7	4	6	3
		Spaoh Landfill Site	0	0.9	4	4	1
		Debak Landfill Site	0	1.4	4	6	1
17.	MP Padawan	- no feedback					
18.	MD Dalat dan Mukah	KM 6, Jalan Mukah/Dalat	1	2.0	16	7	2
		Pekan Selangau	1	2.0	5	15	2
		Jalan Bahong Balingian	1	2.4	2	20	1
		KM 3, Jalan Mukah/Dalat	1	4.0	8	10	1
		Stapang	2	3.8	2	25	0.1
19.	MD Luar Bandar Sibul	Batu 26, Jalan KJD	0	0.6	- no information		
20.	MD Kapit	5 KM, Jalan Bukit Goram	0	4.0	10	18	0.5
21.	MD Lundu	- no feedback					
22.	MD Kanowit	Km 7, Jln Kanowit-Durin, Kanowit	0	3.2	16	12	1.2
23.	MD Lubuk Antu	Jalan Empelam, Engkilili	1	1.2	0.5	20	0.5
		Lot 132, Jln Batu Kaya	1	0.9	0.5	20	0.5

No.	Local Authority (LA)	Address/Location Of Landfill Site	Level	Area (ha)	Estimated Waste Disposed (tonne/day)	Life span (year)	Distance From Residential Area (km)
SARAWAK							
24.	MD Sri Aman	Km 12, Sri Aman/Serian Road	0	1.2	35	almost full	1
		Lingga	0	1.6	20	15	2
		Pantu	0	0.6	4	10	1.5
25.	MD Subis	- no feedback					
SABAH							
1.	MD Papar	Batu 6 Kampung Langkawit, Jln Bukit Manggis	0	10.0	10	10	9
2.	MD Lahad Datu	Tanjung Bakaruan, KM. 31, Tawau Highway	0	50.0	36	20	no information
3.	MD Kota Belud	No landfill sites in MD Kota Belud, solid waste varnish in DBKK					
4.	DB Kota Kinabalu	Kg. Kayu Madang, Telipok	2	114.6	300	12.5	1
5.	MD Tambunan	KM.14 Mangkatai, Tambunan	1	15.0	4	12	3
6.	MD Ranau	Tanah Merah (Simpang Jalan Air Panas Poring-Sandakan)	0	15.0	50	20	3
7.	Lem.Bandaran Kudat	Batu 7.5, Jalan Sikuati Kudat	0	10.0	60-80	10	1
8.	MP Tawau	Bukit Gemuk Tawau	0	15.0	no information	10	1.5
9.	MD Penampang	Kayu Madang, Talipok, Bandaraya	0	46.6	- no information		
10.	MD Sipitang	Jlan Pantai, Merintaman	0	0.8	10	20	1
11.	MD Tuaran	Kg. Tajau	1	1.6	0.5	5	0.5
12.	MD Kinabatangan	Pekan Kota Kinabatangan	0	2.0	1	10	1
13.	MP Sandakan	Jalan Fook Kim, Batu 8, Jln Labuk Sandakan	0	101.2	300	20	0.2
14.	MD Beaufort	Jalan Lama Beaufort-Kota Kinabaru Baru	0	5.0	3.5	5	1.1
15.	MD Kuala Penyu	Kepayan Skim	0	0.4	16	5	1
16.	MD Kota Marudu/Pitas	Pekan Lama, Jalan Timbun	0	0.8	4 to 6	5	2
17.	MD Keningau	Jalan Ulu Liawan Keninggau	1	10.1	26 to 30	20	1
18.	MD Tenom	Kg. Amboi	1	3.8	no information	15	0.7
19.	MD Beluran	Pekan Beluran	0	20.2	8	20 to 40	3
		Pekan Telupid	0	6.1	6	20 to 30	3
20.	MD Kunak	Kg. Pangkalan Madai	0	6.1	3	5	0.5
21.	MD Nabawan	- no feedback					
22.	MD Semporna	- no feedback					
W. PERSEKUTUAN							
1.	Kuala Lumpur	Taman Beringin	2	- no information			
2.	Labuan	Pulau Labuan	1	12.1	45	2	0.5

(Source: Ministry of Housing and Local Government, 2003)

**INFORMATION OF CLOSED LANDFILL SITES
UNDER LOCAL AUTHORITIES (LAs)
(FROM DECEMBER 2001 TO DECEMBER 2003)**

No.	Local Authority (LA)	Address/Location of Landfill Site	Area (ha)	Operations Start Year (Estimated)	Year Landfill was Closed	Remarks
JOHOR						
1.	MP Batu Pahat	No				
2.	MP Muar	No				
3.	MD Yong Peng	KM 1, Jln. Kluang Ayer Hitam	2.02	1976	2001	
4.	MB Johor Bahru	Taman Tahana, Tampoi Industries	21.05	1980	1997	
5.	MD Tangkak	Sg. Chohong, Jln. Sialang, Tangkak	4	1967	2001	
6.	MP Johor Bahru Tengah	Taman Megah Ria	5.6	1989	1997	
		Lima Kedai	4.04	1996	1998	
		Taman Nora, Ulu Tiram	14.6	1998	-	Proposed to closed on December 2003 and shift to Seelong landfill site, Kulai District Territory
7.	MD Simpang Renggam	Batu 49 1/2, Jln. Air Hitam	2.43	1990	1997	
8.	MD Mersing	No				
MELAKA						
1.	MD Jasin	Batang Melaka, Mukim Batang Melaka	2.2	1983	2001	
		Lipat Kajang, Mukim Jasin	4	1970	2000	
2.	MD Alor Gajah	Kg. Rantau Panjang, Masjid Tanah	1.8	1973	1991	
		Batu 1, Jalan Seremban Tampin	2.2	1987	2001	
NEGERI SEMBILAN						
1.	MD Jempol	No				
2.	MD Tampin	No				
3.	MD Kuala Pilah	Ulu Maadop, Senaling	8.09	1981	-	
4.	MD Jelebu	No				
SELANGOR						
1.	MD Kuala Langat	Kawasan Perusahaan Banting	4	1985	1998	
		Kawasan Tanjung Sepat Indah	1	1985	1998	
2.	MP Klang	Telok Gong, Pandamaran	19.42	1986	2000	
3.	MP Petaling Jaya	Kelana Jaya, Petaling Jaya	20.24	1985	1997	
4.	MD Hulu Selangor	Jln. Besar Tanjung Malim, Kalumpang	2	1900	1998	Opposition by resident of Kg. Batang Kali
		Jalan S.K.C. Rasa	2	1990	1990	

No.	Local Authority (LA)	Address/Location of Landfill Site	Area (ha)	Operations Start Year (Estimated)	Year Landfill was Closed	Remarks
SELANGOR						
		Kaw. Bina Semangat	2	1996	1997	
		Serendah	2	1993	1998	
5.	MP Ampang Jaya	KM 14, Jalan Hulu Langat	15	1992	1997	
6.	MP Subang Jaya	No				Used Worldwide landfill
PERAK						
1.	MD Gerik	Jln. Felda Tawai 3 Gerik	1.5	1992	1997	Felda is the rightful of the landfill site to develop the site to be rubber and oil palm estate
2.	MD Kinta Selatan	No				
3.	MD Lenggong	Kuak, Mukim Durian Pipit	0.6	1979	1999	
4.	MD Manjung	No				
5.	MD Pangkalan Hulu	Jalan Kliian Intan, Pangkalan Hulu	2	1985	1994	
6.	MD Tanjung Malim	No				
7.	MD Taiping	Kemutong, Taiping	1.21	2000	2000	
8.	MD Hilir Perak	No				
KEDAH						
1.	MD Langkawi	No				
2.	MD Kubang Pasu	KM 23, Bukit Kayu Hitam highway	5.03	1980	2001	
3.	MD Kota Setar	No				
4.	MD Yan	Lot 5490 Titi Bakong. Mk.Titi Bakong	0.5	1979	1985	Become a nursery
		Lot 2415 SPG.3, Sg. Limau	0.5	1979	1985	Become a recreational park
		Lot 3440, Guar Chempedak	-	1979	1985	Workshop & stor
5.	MD Kulim	No				
6.	MD Pendang	No				
7.	MP Sungai Petani	Jln. Kg. Penahu, Jeniang	10	1998	2001	
PULAU PINANG						
PERLIS						
PAHANG						
1.	MD Rompin	Tebu Hitam		1996	1997	
		Kg. Sembayan		1997	2000	
2.	MD Bentong	Sg. Sematut, Kuala Lumpur Highway - Bentong	4	1996	2000	

No.	Local Authority (LA)	Address/Location of Landfill Site	Area (ha)	Operations Start Year (Estimated)	Year Landfill was Closed	Remarks
<u>PAHANG</u>						
3.	MP Temerloh	No				
4.	MD Maran	No				
5.	MD Cameron Highland	Batu 34, Jln Tapah-Cameron Highland	0.4	1990	2001	
6.	MD Raub	No				
7.	MD Bera	Kemayan	3.64	1995	2001	
		Kerayong	3.24	1995	2001	
		Mengkuang	4.86	1995	2001	
		Teriang	2.83	1980	2001	
		Mengkarak	3.64	1984	2001	
<u>TERENGGANU</u>						
1.	MD Marang	No				
2.	MD Setiu	Air Sejuk	2	1986	1994	
		Rhu Tapai	1	1988	1990	
		Seberang Penarek	2	1990	1996	
		Bukit Bidung (Merang)	1.5	1992	1998	
		Sungai Tong	1	1990	1996	
3.	MD Dungun	KM 4, Jln. Satong Paka, Dungun	1.8	1970	2001	
4.	MP Kuala Terengganu	Tok Jembal, Gong Badak, K. Trg.	5.66	1985	1998	Part of the landfill site has been develop to a golf field
5.	MD Besut	No				
6.	MD Hulu Terengganu	No				
7.	MD Kemaman	No				
<u>KELANTAN</u>						
1.	MD Pasir Puteh	No				
2.	MD Bachok	Kg. Hujung Repek	2.54	1985	1996	
3.	MD Tumpat	No				
4.	MD Kota Bahru	Bukit Pak Dogol, Kok Lanas, Jalan Kuala Krai	0.81	1982	1998	
5.	MD Tanah Merah	Kg. Chat Rimau, Tanah Merah.	2.5	1986	2001	
6.	MD Jeli	Batu O, JRTB, Base Camp, Jeli.	4.05	1990	2000	
7.	MD Kuala Krai Selatan.	KM 42, Jln. Kuala Krai-Gua Musang, Sg. Sam. Kuala Krai	0.2	1990	2000	
<u>SARAWAK</u>						
1.	DB Kuching Utara	No				
2.	MD Lawas	No				

No.	Local Authority (LA)	Address/Location of Landfill Site	Area (ha)	Operations Start Year (Estimated)	Year Landfill was Closed	Remarks
<u>SARAWAK</u>						
3.	MD Maradong dan Julau	No				
4.	MD Marudi	No				
5.	MD Saratok	No				
6.	MD Sarikei	Jalan Merudu (4KM dari Sarikei)	2.4	1982	1987	
		Jalan Sare (12KM dari Sarikei)	4.8	1987	1996	
7.	MD Serian	No				
8.	MP Sibul	Jln Seng Ling off Jln Oya, Sibul	8.1	1969	-	still become a landfill site for solid waste.
9.	MD Betong	Betong, KM 1 1/2 landfill site	0.44	1981	2001	
10.	MP Padawan	No				
11.	MD Dalat dan Mukah	Belingin (2KM dari Pekan Belingin)	498.68' x 400.25'	1987	1999	
12.	MD Lubuk Antu	No				
13.	MD Sri Aman	No				
<u>SABAH</u>						
1.	MD Papar	Kg. Kelanahan	1	1981	1985	
2.	MD Lahad Datu	No				
3.	MP Tawau	No				
4.	MD Penampang	Kg. Gumbahon Duvanson, Penampang	62.4	1983	1996	Now the landfill site sharing with the DB Kota Kinabalu in Kayu Madang Telipot
5.	MD Sipitang	No				
6.	MD Tuaran	No				
7.	MD Kinabatangan	Kota Kinabatangan sewerage site	4.27	1990	2001	
8.	MD Kuala Penyu					
9.	MD Keningau	Jalan Meninipir, Keningau	0.8	1970	1991	
10.	MD Tenom	Jln. Binaie, Tenom	4.52	1971	1987	
<u>W. PERSEKUTUAN</u>						
1.	Labuan	No				

(Source: Ministry of Housing and Local Government, 2003)

Data Book 3

Survey Inventory Sheets of Landfill Sites

List of Inventory

State	No.	Local Authority	Landfill Site	Condition
Selangor	SL-01	MP Petaling Jaya	Kelana Jaya	closed
	SL-02	MP Klang	Telok Kapas	operation
	SL-03	MP Kajang	Sungai Kenbong	operation
	SL-04	MP Selayang	Kundang	operation
	SL-05	DB Kuala Lumpur	Taman Beringin	operation
N.Sembilan	NS-01	MP Nilai	Pajam	operation
	NS-02	MP Nilai	Kuala Sawah	closed
	NS-03	MP Seremban	Sikamat	operation
	NS-04	MP Port Dickson	Quarters MPPD	closed
	NS-05	MP Port Dickson	Bukit Palung	operation
	NS-06	MP Port Dickson	Pengkalan Kempas	closed
	NS-07	MP Port Dickson	Sua Betong	operation
Melaka	ML-01	MD Alor Gajah	Air Molek	operation
	ML-02	MD Alor Gajah	Pulau Sebang	closed
	ML-03	MB Melaka	Krubong	operation
	ML-04	MB Melaka	Krubong A*	closed
	ML-05	MB Melaka	Kota Laksamana	closed
	ML-06	MD Jasin	Lipat Kajang	closed
	ML-07	MD Jasin	Batang Melaka*	closed
	ML-08	MD Jasin	Kesang Pajak*	closed
Johor	JH-01	MD Tangkak	Chohong	closed
	JH-02	MP Muar	Bakri	operation
	JH-03	MP JB Tengah	Ulu Tiram	operation
	JH-04	MP JB Tengah	Lima Kedai	closed
	JH-05	MP JB Tengah	Kempas	closed
	JH-06	MP JB Tengah	Taman Mega Ria	closed
	JH-07	MD Kota Tinggi	Batu Empat	operation
	JH-08	MD Kota Tinggi	Sungai Rengit*	operation
	JH-09	MD Kota Tinggi	Bandar Kota Tinggi	closed
	JH-10	MD Mersing	Jemaluang	operation
	JH-11	MD Mersing	Endau	operation
	JH-12	MD Mersing	Sri Pantai	operation
Pahang	PH-01	MD Rompin	Kampung Feri	operation
	PH-02	MD Pekan	Keledang	operation
	PH-03	MP Kuantan	Taman Bandar	closed
	PH-04	MP Kuantan	Gambang*	closed
	PH-05	MP Kuantan	Indera Mahkota	closed
	PH-06	MP Kuantan	Jabor Jerangau	operation
Terengganu	TR-01	MP Kemaman	Fikri	closed
	TR-02	MP Kemaman	Gelugor	closed
	TR-03	MP Kemaman	Gelugor	operation
	TR-04	MP Kemaman	Mak Cili Paya	operation
	TR-05	MP K.Terengganu	Tok Jembal	closed
	TR-06	MP K.Terengganu	Wakaf Tok Keh	closed
	TR-07	MP K.Terengganu	Kubang Ikan	operation

List of Inventory

State	No.	Local Authority	Landfill Site	Condition
Kelantan	KL-01	MP Kota Baru	Panji	closed
	KL-02	MP Kota Baru	Tebing Tinggi	operation
	KL-03	MD K.Krai Selatan	Sungai Sam	closed
	KL-04	MD K.Krai Selatan	Bukit Tembeling	operation
Perak	PR-01	MD Kinta Selatan	Sg. Siput Selatan	operation
	PR-02	MD Kinta Selatan	Kg. Batu Putih (Kg. Tersusun)	closed
	PR-03	MD Kinta Selatan	Taman Sri Kampar	closed
	PR-04	MB Ipoh	Bercham	operation
	PR-05	MB Ipoh	Buntong	closed
	PR-06	MB Taiping	Jebong	operation
	PR-07	MB Taiping	Tekkah Jaya	closed
	PR-08	MD Tapah	Pekan Getah	operation
	PR-09	MD Tapah	Bidor	operation
Penang	PP-01	MP Pulau Pinang	Jeti Jelutong	operation
	PP-02	MP Seberang Perai	Ampang Jajar	operation
	PP-03	MP Seberang Perai	Pulau Burong	operation
Kedah	KD-01	MP Kulim Kedah	Padang Cina	operation
	KD-02	MD Baling	Pulai	operation
	KD-03	MD Baling	Kuala Pegang	closed
	KD-04	MP Sungai Petani	Semeling	operation
	KD-05	MP Sungai Petani	Jeniang	closed
	KD-06	MP Kota Setar	Bukit Tok Bertandok	operation
	KD-07	MD Kubang Pasu	Paya Kemunting	operation
Perlis	PL-01	MP Kangar	Kuala Perlis	operation

* Site not visited

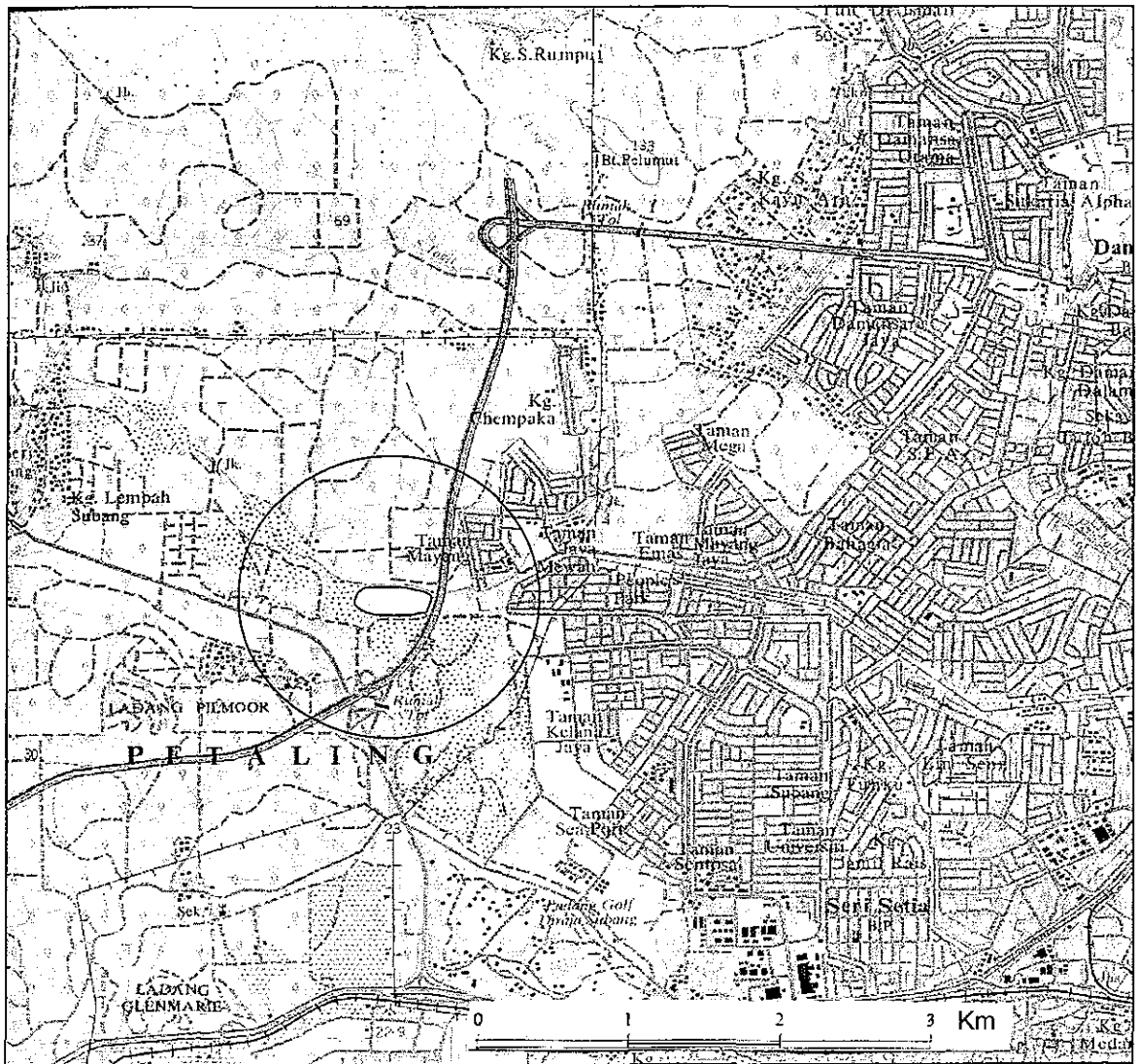
Sites visited	64
Sites not visited	5
Total	69

State	Selangor
No.	SL-01

Basic Information			
Name of LA	MP Petaling Jaya		
Name of Landfill	Kelana Jaya		
Location of the Landfill	-		
Status of Landfill	closed	(Remaining Life Span : -)	
Year Start Operation	1990	Year Cease Operation	1996
Managed by	Developer		
Land ownership	private ownership		
Gazetted	no		
Area	15-20 acres	Waste Disposed daily	200
Reasons for closure	Reach the life span		
Remarks			
Environmental Impact Conditions			
Landfill Level	Level 1		
Site Condition	ex-quarry		
Waste Covered	yes	(Frequency : final surface)	
Type of Vegetation	no vegetation		
Landslide	no		
Soil Subsidence	not noticeable		
Vector and animals	no		
Odor, gas and smoke	medium (odour)		
Leachate Quantity	no		
Location of Intake Point	upstream		
Distance from Intake Pt	- km)		
Drinking Water Well	no		
Geological Condition	alluvial		
No of complaints (/year)	no		
dist. from Residential	<500 m		
Remarks			
Land Utilisation after closure			
Existing Land Utilization	underdeveloping		
Surrounding area	industry/commerce,housig,recreation		
Ultimate Landuse	yes(housing) (Level : high)		
Incl. in Local Development. Plan?	yes		
Probability of Development	under developing		
Distance from town centre (km)	<5km		
Remarks			

Maps

		No	SL-01
Local Authority	MP Petaling		
Name	Kelana Jaya		
Location	101°35'30"	03°06'35"	
Survey date			
Maps			



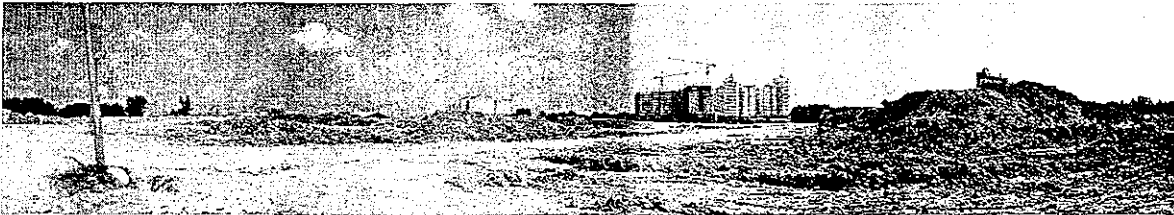
Comments

Photos

		No	SL-01
Local Authority	MP Petaling Jaya		
Name	Kelana Jaya		
Survey date	6-Mar-03		
Comments			

Photos

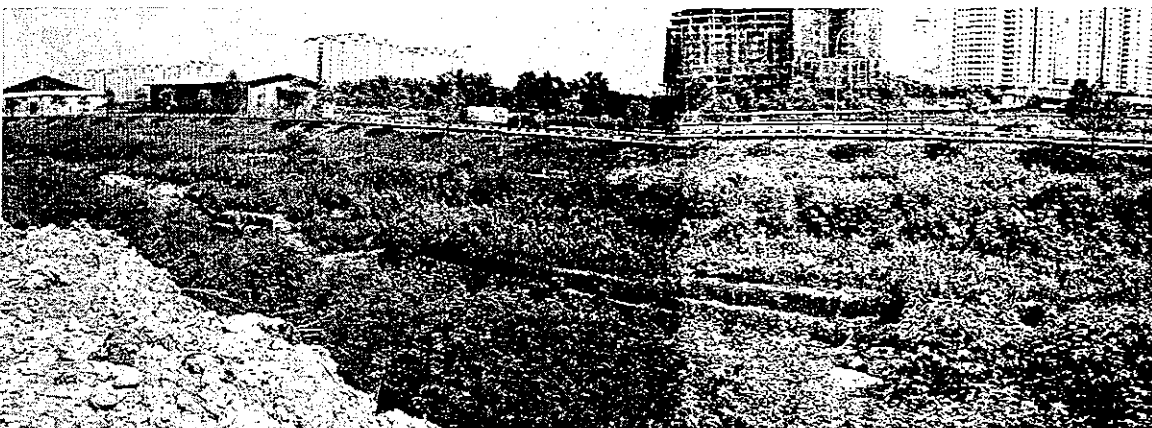
Landscape : Residence is under consutructing. (Buildings on the back is surrounding area.)



Landscape



Landscape of North side of the site. Small River, LRT and Residence is seen.



	State	Selangor	
	No.	SL-02	
Basic Information			
Name of LA	MP Klang		
Name of Landfill	Telok Kapas		
Location of the Landfill	Telok Kapas, Bandar Siltan Sulaiman		
Status of Landfill	operation	(Remaining Life Span :	1 year)
Year Start Operation	2000	Year Cease Operation	2003
Managed by	Local Authority		
Land ownership	private ownership (22 land owner)		
Gazetted	yes		
Area	80 acres	Waste Disposed daily	470
Reasons for closure	-		
Remarks			
Environmental Impact Conditions			
Landfill Level	Level 1		
Site Condition	swampy		
Waste Covered	yes	(Frequency :	daily)
Type of Vegetation	no vegetation		
Landslide	no		
Soil Subsidence	not noticeable		
Vector and animals	medium (flies)		
Odor, gas and smoke	medium (odour)		
Leachate Quantity	medium		
Location of Intake Point	upstream		
Distance from Intake Pt	- km)		
Drinking Water Well	no		
Geological Condition	alluvial		
No of complaints (/year)	no		
dist. from Residential	-		
Remarks			
Land Utilisation after closure			
Existing Land Utilization	vacant		
Surrounding area	industry/commerce,housig		
Ultimate Landuse	not known (Level : -)		
Incl. in Local Development. Plan?	no		
Probability of Development	high		
Distance from town centre (km)	>10km		
Remarks			

Photos

No	SL-02
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Local Authority	MP Klang
Name	Telok Kapas
Survey date	6-Mar-03
Comments	

Photos

Landscape : Many people engage recycling.



Landscape of the slope. Trench is set up surrounding the site.



Water of the trench.
This water flow out to the river.







	State	Selangor	
	No.	SL-03	
Basic Information			
Name of LA	MP Kajang		
Name of Landfill	Sungai Kenbong		
Location of the Landfill	TP Sementara Sungai Kembong, Beranang		
Status of Landfill	operation	(Remaining Life Span : -)	
Year Start Operation	2000	Year Cease Operation	-
Managed by	Local Authority		
Land ownership	State land		
Gazetted	yes		
Area	40 acres	Waste Disposed daily	700-800
Reasons for closure	-		
Remarks			
Environmental Impact Conditions			
Landfill Level	open dumping		
Site Condition	ex-quarry		
Waste Covered	yes	(Frequency : monthly)	
Type of Vegetation	no vegetation		
Landslide	no		
Soil Subsidence	not noticeable		
Vector and animals	medium (flies)		
Odor, gas and smoke	medium (odour)		
Leachate Quantity	medium		
Location of Intake Point	no		
Distance from Intake Pt	- km)		
Drinking Water Well	no		
Geological Condition	alluvial		
No of complaints (/year)	yes(smell,flies)		
dist. from Residential	>500m		
Remarks			
Land Utilisation after closure			
Existing Land Utilization	vacant		
Surrounding area	jungle		
Ultimate Landuse	no	(Level : -)	
Incl. in Local Development. Plan?	no		
Probability of Development	high		
Distance from town centre (km)	>10km		
Remarks			

Maps

		No	SL-03
Local Authority	MP Kajang		
Name	Sungai Kembong		
Location	101°49'24"	02°53'09"	
Survey date			
Maps			
Comments			

Photos

		No	SL-03
Local Authority	MP Kajang		
Name	Sungai Kenbong		
Survey date	7-Mar-03		
Comments			
Photos	<p>Landscape of northside. The site is adjoined river.</p>  <p>Soil cover is not done.</p>  <p>Landscape of eastside of the site (seen from operating area).</p>  <p>Recycling</p> 		

State	Selangor
No.	SL-04

Basic Information			
Name of LA	MP Selayang		
Name of Landfill	Kundang		
Location of the Landfill	TP Pelupusan Kundang, Batu23, Jalan Batu Arang, 48000 Rawang, Selangor		
Status of Landfill	operation	(Remaining Life Span : 2 years)	
Year Start Operation	1996	Year Cease Operation	2005
Managed by	Private Company		
Land ownership	State land		
Gazetted	yes		
Area	80 acres	Waste Disposed daily	400-500
Reasons for closure	-		
Remarks			
Environmental Impact Conditions			
Landfill Level	Level 1		
Site Condition	ex-quarry		
Waste Covered	yes	(Frequency : daily)	
Type of Vegetation	no vegetation		
Landslide	no		
Soil Subsidence	not noticeable		
Vector and animals	medium (flies)		
Odor, gas and smoke	medium (odour)		
Leachate Quantity	noticeable		
Location of Intake Point	no		
Distance from Intake Pt	- km)		
Drinking Water Well	no		
Geological Condition	alluvial		
No of complaints (/year)	no		
dist. from Residential	5-6km		
Remarks			
Land Utilisation after closure			
Existing Land Utilization	vacant		
Surrounding area	vacant		
Ultimate Landuse	no	(Level : -)	
Incl. in Local Development Plan?	no		
Probability of Development	low		
Distance from town centre (km)	>10km		
Remarks			

Photos

No

SL-04

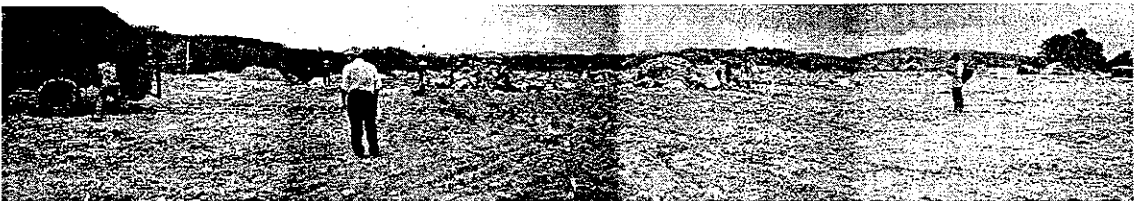
Local Authority	MP Selayang
Name	Kundang
Survey date	7-Mar-03
Comments	

Photos

Landscape : There are many birds and flies.



Recycling is done.



LeachatePond (black pond of backside). Monitoring is 1 times per 3 month. Lots of waste float.

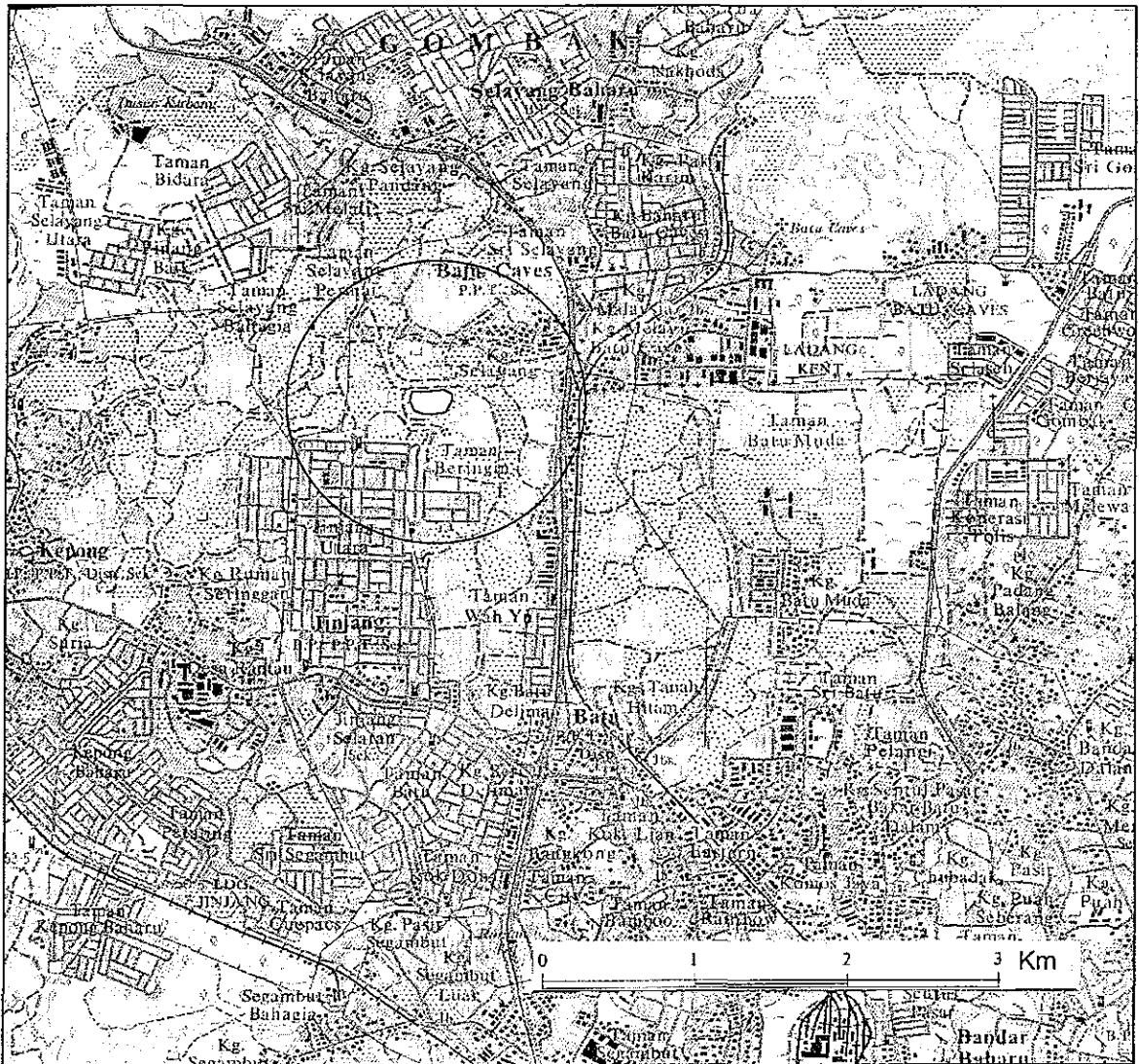


State	Selangor
No.	SL-05

Basic Information			
Name of LA	DB Kuala Lumpur		
Name of Landfill	Taman Beringin		
Location of the Landfill	Taman Beringin		
Status of Landfill	operation	(Remaining Life Span :	1 year)
Year Start Operation	1996	Year Cease Operation	-
Managed by	Private Company		
Land ownership	State land		
Gazetted	yes		
Area	12 ha	Waste Disposed daily	2000-2300
Reasons for closure	-		
Remarks			
Environmental Impact Conditions			
Landfill Level	Level 2		
Site Condition	ex-quarry		
Waste Covered	yes	(Frequency : weekly)	
Type of Vegetation	no vegetation		
Landslide	medium(slope 1:1-1.5, hight 30m)		
Soil Subsidence	not noticeable		
Vector and animals	medium (flies)		
Odor, gas and smoke	medium (odour)		
Leachate Quantity	noticeable		
Location of Intake Point	no		
Distance from Intake Pt	- km)		
Drinking Water Well	no		
Geological Condition	alluvial		
No of complaints (/year)	yes		
dist. from Residential	<500 m		
Remarks			
Land Utilisation after closure			
Existing Land Utilization	vacant		
Surrounding area	housing		
Ultimate Landuse	yes	(Level : low)	
Incl. in Local Development. Plan?	no		
Probability of Development	high		
Distance from town centre (km)	<5km		
Remarks			

Maps

		No	SL-05
Local Authority	Dewan Bandaraya Kuala Lumpur		
Name	Taman Beringin		
Location	101°40'02"	03°13'40"	
Survey date			
Maps			



Comments

Photos

No	SL-05
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Local Authority	DB Kuala Lumpur
Name	Taman Beringin
Survey date	8-Mar-03
Comments	

Photos

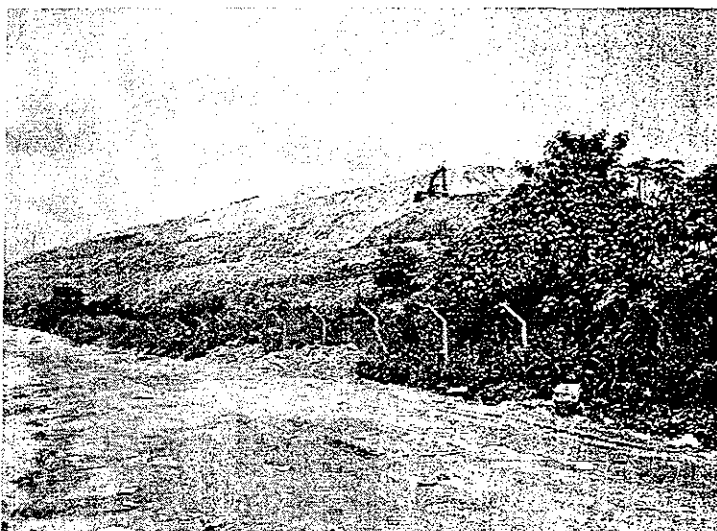
Landscape of northside of site. Leachate pond is seen below.



Top of the landfill site. Recycling is done.



The slope is steep and high.



Leachate in the trench.

