Study on ESM guideline in Asia

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The Secretariat of the Asian Network

Contents

- The review of the past studies in 2009 and 2010 on TBM trend and state of ESM in Asia
- Latest study conducted in 2011
- Possible ESM criteria/guidelines concept

Study 1 conducted

- In 2009, "*Analysis of TBM of hazardous wastes in Asia*" was conducted based on the national reporting data of the Basel Convention to find out the TBM trend and state of ESM of hazardous wastes and recyclables.
- Study mainly found the followings
  - The TBM of hazardous wastes among non-OECD countries surpasses that from OECD countries to non-OECD countries.
  - Most TBM is conducted for the purpose of recycling including the recovery and reclamation of metals and inorganic substances.
  - Non-OECD countries with a higher income level are establishing facilities which are capable of recycling and treatment of hazardous wastes with environmentally sound manner at a comparatively high technology and operational level.

*Full report is downloadable from the Asian Network website

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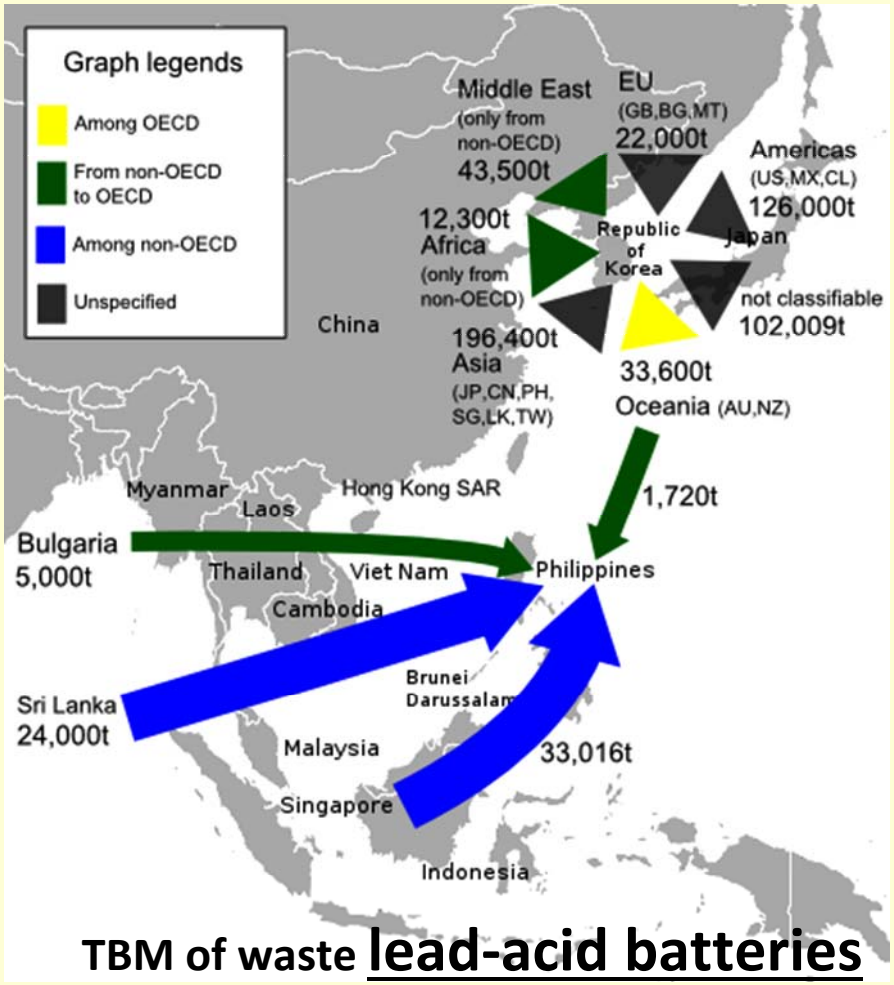
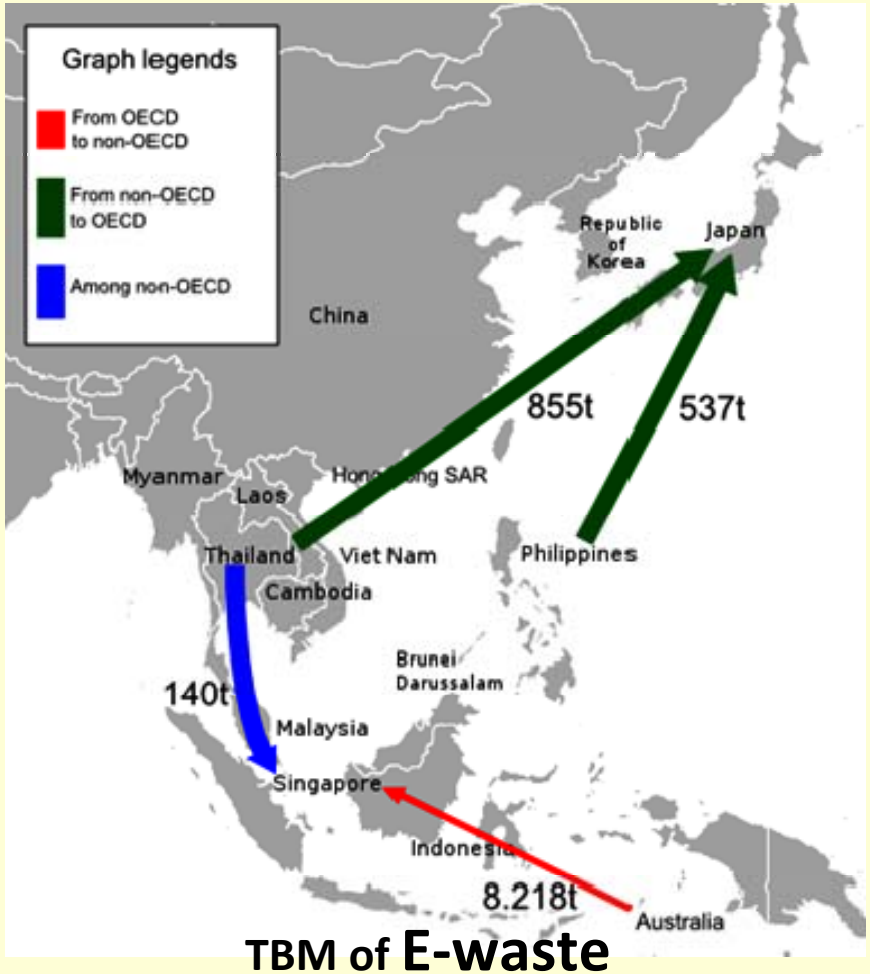


TBM of waste lead-acid batteries

(Import statistics: 2004 to 2006)



TBM of E-waste

(Import statistics: 2004 to 2006)

Study 2 conducted

- In 2010, existing so-called ESM guidelines and documents by the Basel Convention and other international organizations were reviewed to identify elements of ESM criteria for ensuring ESM.
- Study mainly found the followings
  - Almost all G/Ls are same components, with some differences a case to the other.
  - Comprehensively made, covering compliance, organizational management system, occupational safety and health, data recording and reporting and downstream channel management.

	ESM Criteria on Facilities	Examples
Compliance with legal requirements	• Comply with env standards, legal framework	• Pollution control measure • Environmental licenses
Introduction of Env Management System	• Establish policy for env management	• Intl certification • Top management commitment
Identification of hazardousness and risk	• Identify hazardous or risk on the environment	• Hazardous and risk assessment and management
Occupational safety and health	• Avoid exposures by occupational risk	• Employee training
Awareness and competency of staffs	• Competency of working staff	• Capacity building of working staff
Monitoring, recording, reporting	• Data collection and management	• Regular monitoring and record management
Emergency response	• Capability for unexpected situations	• Emergency response plan • Training for emergency
Secure financial resource	• Financial stability	• Financial strategy for emergency response
ESM in downstream	• Ensure ESM in downstream channel	• Control ling residual materials at downstream channel

	Guidance for ESM Guidelines (SBC)	OECD ESM Guidance Manual (OECD)	Guidelines on 3R in EOL E-Products (BCRC-SEA)	Recovery, Recycling on EOL MPs (MPPI)	ESM Criteria Recommendations (PACE)
Compliance with legal requirements	X		X	X	X
Introduction of Env Management System		X		X	X
Identification of hazardousness and risk			X	X	X
Occupational safety and health		X	X	X	X
Awareness and competency of staffs		X	X	X	X
Monitoring, recording, reporting	X	X	X	X	X
Emergency response	X	X	X	X	X
Secure financial resource	X		X	X	
ESM in downstream				X	X

Study 2 conducted

- In 2010, a questionnaire was also sent to the Basel Convention Competent Authorities in selected Asian countries where the trade of hazardous wastes is permitted on the condition that it is recycled or treated by environmentally sound manner.
- The objective is to clarify the measures, criteria and requirements adopted by those Asian countries to ensure the ESM at the recycling facilities.
- Mainly found out
  - Components are similar
  - Comprehensively covered

	Law and regulation on waste management			
	Japan	Rep Korea	Philippines	Singapore
Compliance with legal requirements	X	X	X	X
Introduction of Env Management System				
Identification of hazardousness and risk	X	X	X	X
Occupational safety and health	X	X	X	X
Awareness and competency of staffs	X	X	X	X
Monitoring, recording, reporting	X	X	X	X
Emergency response		X	X	X
Secure financial resource	X		X	X
ESM in downstream		X	X	X

Latest Study Objectives and items

Objective

- To examine desirable ESM criteria and guidelines which are applicable to Asian countries, considering the findings of a series of previous studies.
- To identify possible ESM criteria and guidelines concept and the components applicable to Asian context.

Studied items

- ESM criteria of manufacturers for selecting waste management contractors
- Evaluation/certification mechanism of E-waste recyclers (international cases)
- First class waste management facilities evaluation scheme in Japan
- ESM facilities handling E-waste in Asia

Study found

-Manufacturers ESM criteria for selecting waste management contractors -

- All manufacturers have their own ESM criteria that are similar to the criteria recommended in the existing guidelines, with slight differences among cases. Main differences are;
  - ***Focus of evaluation***: *Some companies pay much attention to "zero emission" or "recycling rate", while others focus on "no leak of chemical from facility".*
  - ***Evaluation methods***: *Most of the companies have their own "in-house check list". However, there are some differences in terms of "how to weighting each criteria". some companies use the pre-determined scored points, while others evaluate at the discretion of the auditor's competency and experience.*

Study found

-Evaluation/certification mechanism of E-waste recyclers-

Overview of the study

- Studied schemes are;
  - The Recycler Qualification Program (RQP) (Canada), e-Stewards (US), R2 Program (US),WEEELABEX（EU）
  - Facility standards for the collection, storage and disposal of EEE (Taiwan China)
- Main findings are;
  - Components are similar and all comprehensive
  - Some are more focus on down stream channel management and more operational management and monitoring is heavily evaluated than others
  - Continuous monitoring is more emphasized in some cases

Study found

-First class waste management facilities evaluation scheme in Japan-

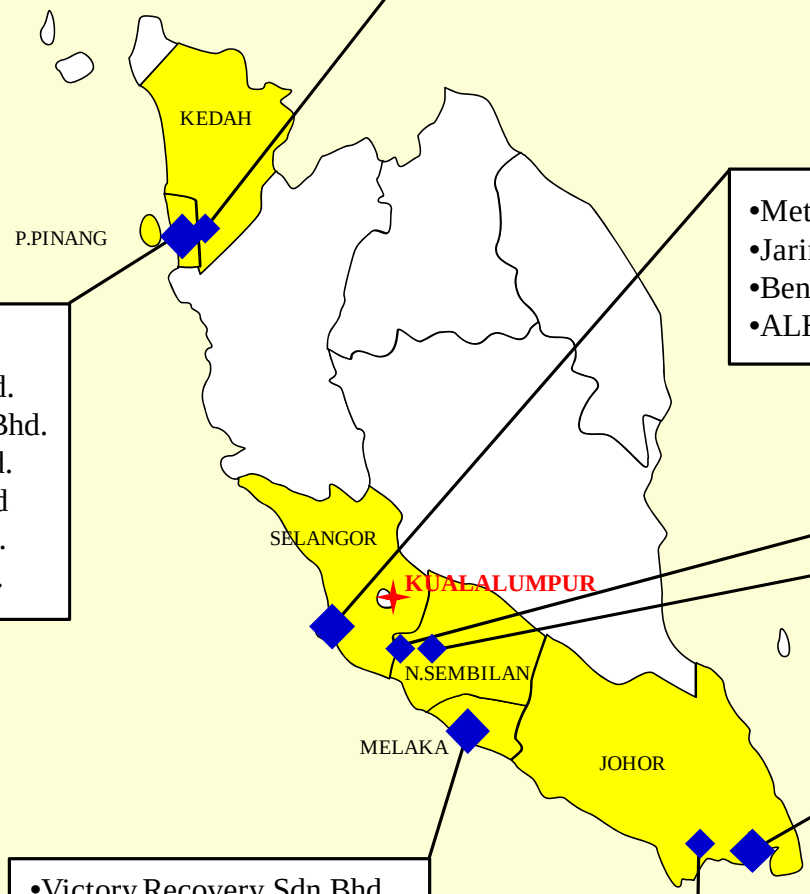
- ***Overview of the study***
  - To collect information regarding criteria for certification system of excellent operators implemented by national government and local government
- ***Finding of the study***
  - Both national and local government have criteria for evaluation and some local governments establishes in-house check list.
  - Some local governments introduces “third-party auditing” system.

E-waste recycling and treatment facilities in Asia

-pollution control measures and downstream management-

Country	Development stage of recycling/treatment facilities (pollution control measures and shipment to secondary treatment facilities)
Singapore	There are six facilities licensed by the NEA which conduct the primary dismantling, crushing, separation and metal recovery of previously leased products and defective products entrusted by leading OEM or manufacturers. Some residuals of the precious metal recovery process are exported to Japan, etc.
Malaysia	20 full recovery and 134 partial recovery facilities are operating as facilities licensed by the DOE. Full recovery facilities are located in Penang and Johor where IT companies are concentrated and conduct primary dismantling, crushing, separation and wet precious metal recovery. Although there are no suitable smelters, the export of PCBs, etc. is not actively sought.
Thailand	There are 30 formal recycling facilities (PCD data) but their operations are limited to primary dismantling, crushing and separation. PCBs are either processed locally for rare metal recovery or exported.
Indonesia	While there is no specific licensing by the KLH of recycling facilities specialising in E-Waste, some recycling facilities engaged in primary dismantling and separation are available. The KLH has published a list of facilities which manage, treat, dispose and/or recycle B3 waste (i.e. hazardous waste), including E-waste.
Philippines	There are 20 facilities licensed by the EMB, primarily in Metro Manila (National Capital Region). Some primary treatment, crushing and separation facilities use developed Western technologies.
Vietnam	Some facilities owned by former state waste recovery and treatment enterprises, etc. conduct the collection, manual dismantling and separation of WEEE.

Mapping of E-waste facility (Malaysia, full recovery)



Natural Arrangement Sdn. Bhd.

- Reclaimtek (M) Sdn.Bhd.
- TES-AMM (Malaysia) Sdn. Bhd.
- Ming Engineering Plastic Sdn. Bhd.
- Cycle Trend Industries Sdn. Bhd.
- DD World Corporation Sdn. Bhd
- Preference Megacycle Sdn. Bhd.
- Shan Poornam Metals Sdn. Bhd.

- Metal Recovery Industries Sdn. Bhd.
- Jaring Metal Industries Sdn. Bhd.
- Benchmark Vista Sdn.Bhd
- ALH Industries Sdn. Bhd.

Ega Recycling Sdn. Bhd

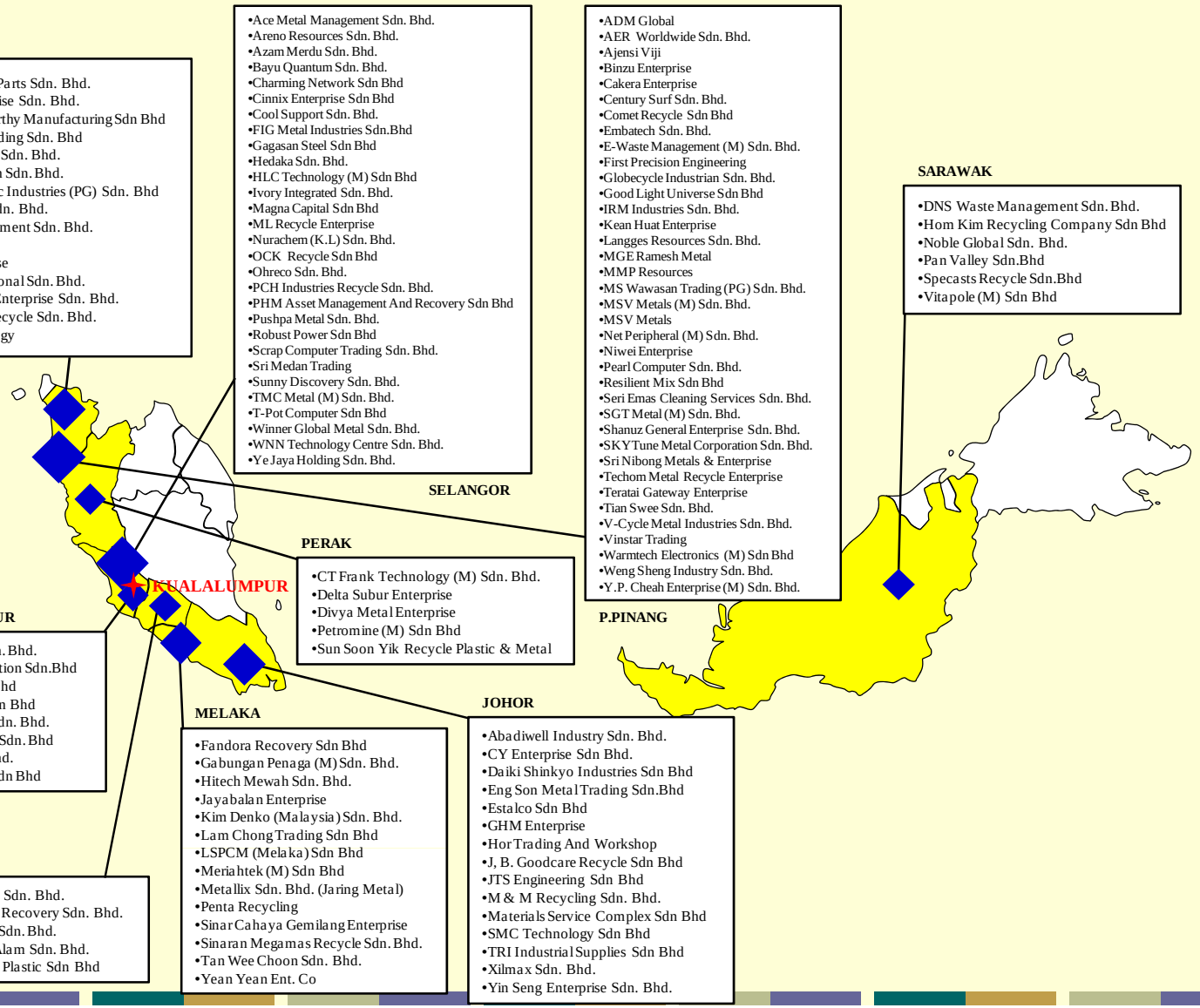
Samsung Corning (M) Sdn. Bhd.

- Victory Recovery Sdn.Bhd
- Modeltech Sdn Bhd
- Krubong Recovery Sdn. Bhd.

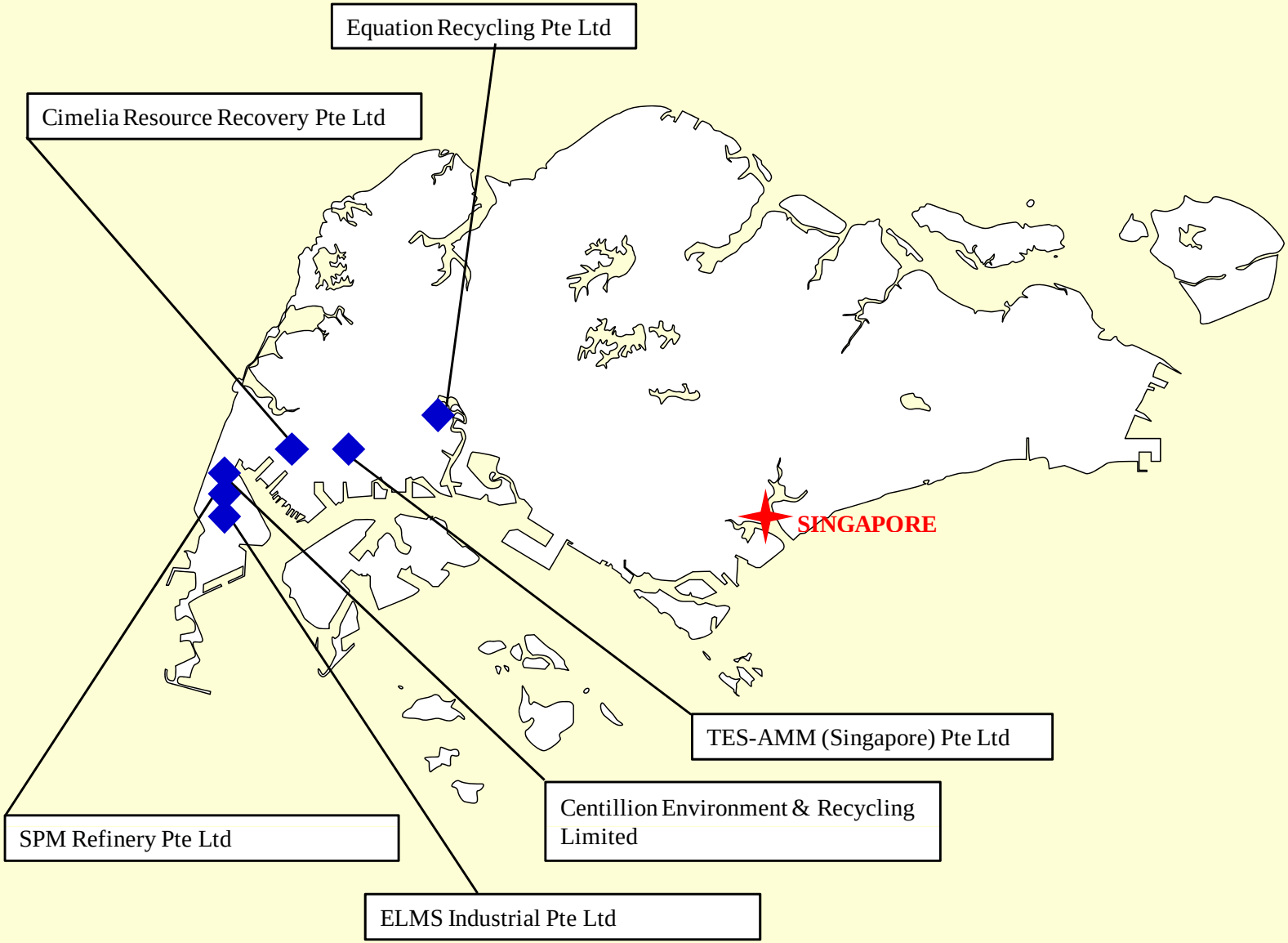
- Estalco Sdn Bhd
- Excelbond Metal Recycling Ind. Sdn. Bhd.
- Hydro Metal (M) Sdn Bhd

Metahub Industries Sdn Bhd

Mapping of E-waste facility (Malaysia, partial recovery)

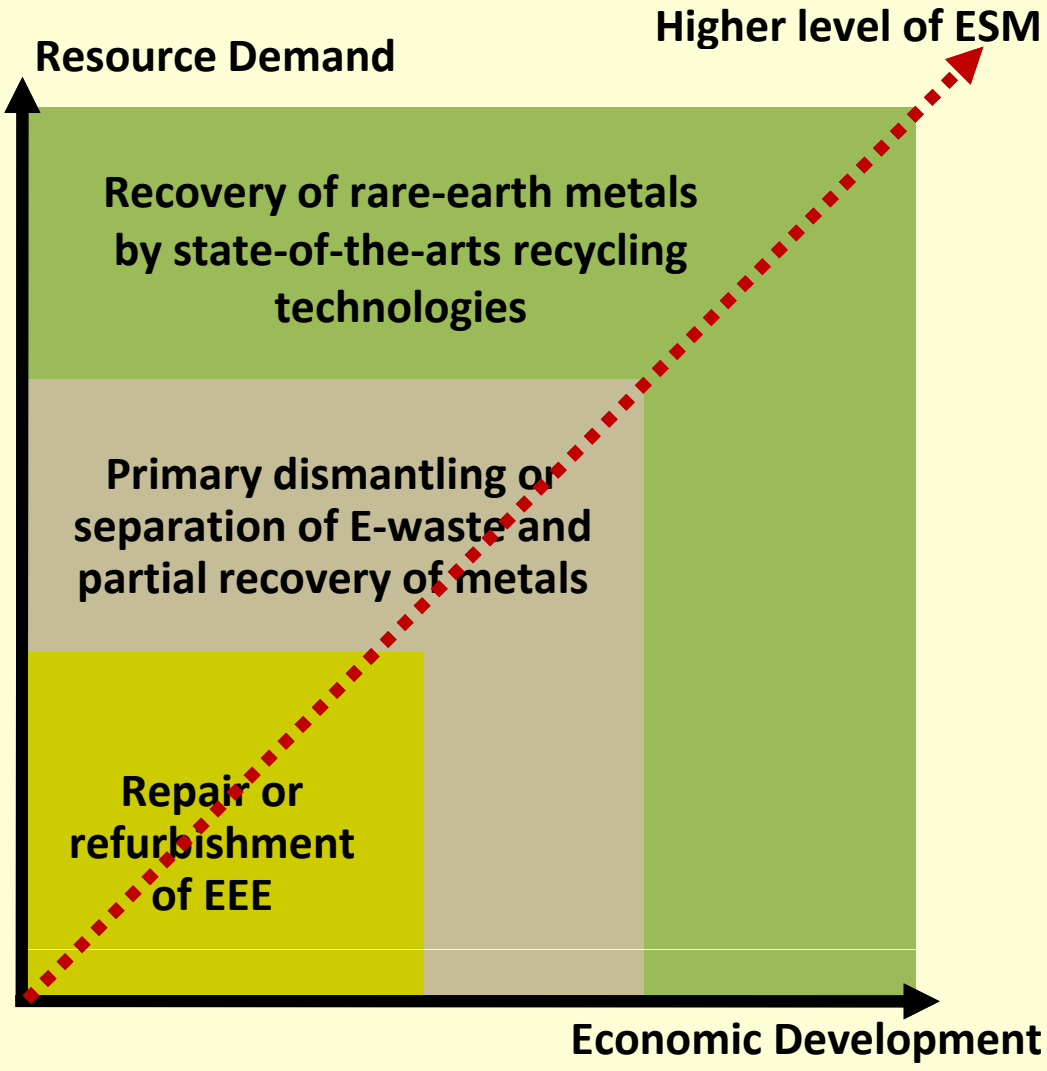


Mapping of E-waste facility (Singapore)



In general, ESM level expected to be raised along with economic growth

- As economic level is developed, resources demand is expected to raise.
- As the manufacturing process and waste treatment and recycling processes become more advanced, the requirements for ESM techniques and systems become more stringent.



Possible ESM criteria suitable for Asia

Concept of ESM Standards

Criteria for Facility relating to Operation

- Environmental control measure under laws and regulations
- Occupational health and safety
- Identification of hazards and risks

Criteria for Facility Personnel Competency

- Awareness and capacity building
- Recruiting of experts

Criteria for Facility relating to Management

- Appropriate Licenses and certification
- Environment management system
- Emergency response plans
- Transparent and Sound Financial stability
- Downstream channel management

Thank you

謝謝

If you have any question or opinion, please contact;

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