Third Meeting of the Regional 3R Forum in Asia
"Technology Transfer for promoting the 3Rs
–Adapting, implementing, and scaling up appropriate technologies"
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Country Analysis Paper

(Draft)

< Malaysia >

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INTRODUCTION

1. Waste management in Malaysia is clearly demarcated between scheduled or hazardous waste and solid waste. Scheduled waste is under the purview of Department of Environment whereas solid waste falls under the newly established Department of National Solid Waste Management. Nonetheless, there is close cooperation between the two Departments because the management of these two types of waste often criss-cross each other especially in their collection and disposal.

2. In this regard, the management of both types of waste entails every aspect; starting from generation, storage, collection, transportation, processing, recycling, treatment and disposal. The Environmental Quality Act, 1974 laid down the regulations pertaining to schedule waste management while the Solid Waste and Public Cleansing Management Act 2007 ensures that solid waste is accordingly manage. In the waste management hierarchy, 3R is high on the priority list and Malaysia is capitalizing on technologies which are environmentally friendly, proven and cost effective to enhance its 3R programmes and activities in the country.

INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

3. The generation of waste must be curtailed and once generated must be treated and disposed of, in an environmentally friendly manner using the best available technologies. The government however has long recognised that waste problem cannot be addressed through end of pipe solution that is through treatment and disposal approach alone. Waste must be treated as resources and where possible must be reduce, reuse and recycle (3R). But for 3R activities to be readily accepted and practice by the private sector as well as the public at large there must be policy to guide them, legislation to control their behaviour and infrastructure to facilite 3R . There also must be incentives to encourage resource recovery as well as waste to energy activities and programmes. Hence, the government is undertaking many different measures including

putting in place policy, legislation as well as providing the infrastructure to ensure 3R is taken to greater height in Malaysia.

Schedule Waste

4. In the schedule waste sector, 3R effort by the DOE is highly concentrated on waste from electrical and electronic equipments due to the huge amount generated in the country. In 2009 about 134,036 metric tonnes of e-waste was geenrated and it is forecasted to be 1.11 million metric tonnes in 2020. Measures taken to encourage recycling activities are directed to licencing recovery facilities and stopping the e waste generated from being exported outside the country. Currently there are 138 e-waste recovery facilities in Malaysia. 16 out of them are the full recovery facilities and the others are the partial recovery facilities. E-waste is allowed to be exported if the local recovery facilities do not have the capability and capacity to carry out suhc activities. The e-wastes are regulated under various regulations such as:

- E-waste has been regulated in Malaysia since 2005;
- Environmental Quality (Scheduled Wastes) Regulations, 2005.
- The 2005 regulation has replaced the 1989 regulation to enable Malaysia to control transboundary movement of e-waste;
- Guidelines for the Classification of Used Electrical and Electronic Equipment in Malaysia", 2nd Edition 2010; and
- Environmental Quality (Prescribed Premises) (Treatment) Disposal Facilities for Scheduled Wastes) Regulations, 1988 (control on collection, treatment, recycling and disposal of scheduled waste including e-waste).

5. Besdies using the Environmental Quality Act, 1974 to manage these wastes, the Department is also using the Custom Order (Prohibiton of Import/Export) Order 2008 to control the importation and export of e waste.

Solid Waste

6. The amount of solid waste generated in Malaysia in 2005 is estimated at 19,000 tonnes per day. But recent study indicates that 27,000 tonnes per day of waste is generated which will soon exceed the 30,000 tonnes/day forecast for 2020. It is estimated that 45% of the solid waste is made up of food waste, 24% of plastic, 7% is paper, 6% of iron and glass and others made up the remainder. Recognising this, solid waste management of in Malaysia has been undergoing a significant paradigm shift in the last few years culminating in the implementation of the Solid Waste and Public Cleansing Management Act 2007 (SWPCM Act) on 1 September 2011. Under this Act, all executive powers pertaining to solid waste management and cleaning is centralized within the Federal Government. The Solid Waste Management Department of the Ministry of Housing and Local Government is tasked with establishing a national sustainable solid waste management system to safeguard public health, protect and conserve the environment and preserve natural-resources.

7. This is a major departure from previous practice where solid wastes disposal and treatment was under the purview of each local authority. It is also an approach that is novel and has not been implemented elsewhere in the world. The Malaysian Government recognized that for an effective and integrated solid waste management system, a better-funded federal department assisted by an implementing and enforcement agency the Corporation of Solid Waste and Public Cleansing Management will serve better the needs of the country. Many of the local authorities are small and experience difficulties in implementing a viable solid waste management system given the lack of resources and economies of scale. Much of the solid wastes are disposed of in unsanitary landfills, while 3Rs practices are weak, and use of green technologies presents a challenge.

8. The SWPCM Act addresses solid waste management in a comprehensive manner, from waste generation to collection, treatment and disposal, with emphasis on

the 3Rs. Under the reduction and recovery of solid waste the SWPCM Act among others stipulates that the Minister may by order of published in the Gazette require:

i. any person to use environmental friendly material;
ii. any person to use specified amount of recycled materials for specified product; and
iii. the implementation of coding and labelling systems for any product or material to promote recycling.

9. The SWM Act addresses solid waste management in a comprehensive manner, from waste generation to collection, treatment and disposal, with emphasis on the 3Rs To further encourage 3R activities in the country, the Act also provides for the establishment of take back system and deposit refund system.

INFRASTRUCTURE

10. To support the implementation of the SWPCM Act in particular on the 3R provision, a new collection system of household solid waste will be carried out in phases from September 2012 starting with the cities, followed by the municipalities and lastly at the district level. The new collection system includes once a week collection of recyclables. This requires the household to do sorting at source of the solid waste. Initially, the people is expected to do it voluntarily but once new regulation is enacted and the collection system of recyclable has been established with the dedicated transportation vehicles throughout the country, the sortIng at source will be made mandatory.

11. In addition, all the new sanitary landfills to be constructed will have a sorting facility on site where all coming waste will go through the sorting faciities before the waste is dump onto the landfills for final disposal.

3R TECHNOLOGIES AND THE GAP

E waste

12. In the e waste sector, existing facilities for e-waste recovery will be able to support the take back scheme However, voluntary take back scheme of e-wastes has not been implemented widely by the producer/ importer of electronic and electrical equipment, hence a compulsory requirement of take back scheme through legislation is required. Furthermore, many consumers are in the opinion that e-wastes contain valuables materials hence they are supposed to be paid when they disposed of the e-wastes rather than to pay to the recyclers.

13. In term of 3R technology, there seems to be a very limited choice for the industry to expand outside the existing scope. At present the main technology employed to recover e-wastes in terms of precious metals in Malaysia is still limited to wet chemical processes and electrolysis.

Solid Waste

14. In the solid waste sector, 3R technologies being looked into, includes waste to energy technology such as generation of energy from incineration plant, capturing the methane gas from landfill and the technology to convert solid waste into gas, oil and compost and biogas facilitie . The ensure that the technology introduced into the country is reliable, environmentally friendly and cost effective, a Technology Evaluation Committee setup under the Ministry of Housing and Local Government to assess technologies being proposed by interested parties to be introduced in the country. Only those technologies that have gone through this Committee will be allowed to be introduced into the country.

15. Besides this arrangement, the government intend to implement the Renewable Energy Act ealry next year. Under this new Act, those who are engage in waste to energy technologies will be able to enjoy a better tarriff than those using the traditional technology of utilising fossil fuel as the source of energy. This will encourage the growth of such industry in the country.

16. To further encourage this environmentally friendly technology provider to invest in the country, the government also set up the green certification system where those companies or investor which promote green tehcnologies are given an endorsement from the government to enable them to secure loans from the financial institutions.

17. However, despite all the incentives provided by the government, the implementation of 3R technoglogies in particular in the solid waste sector, has not been very encouraging. The construction, operation and maintenance of plants using such technologies involves high capital and cost. The banking sector is quite reluctant to provide the financial support especially when new technologies are involved. Local investors in particular which has acquire these new technologies are unable to secure the loan required from the financial institution to built the plants.

18. Even if they are able to secure the financial resources needed, they are still face with the operating and maintanence issues. The operating and maintenance cost of such plant comes from the tipping fees to be secured from the local authorities. Most local authorities in Malaysia did not have a sound financial resources to pay for all the new technologies carried out to treat and dispose the waste. Without the federal government intervention or commitment to provide the bridging finance, the introduction of environmentally friendly and modern technology will face an uphill task.

CONCLUSION

19. Waste management in Malaysia has seen great changes and upscaling in recent years. The hazardous waste management is quite mature with good institutional land

egislative framework as well as infrastrucutre despite the constraint in 3R technolgies being lomited to electrolysis and wet chemical process. A coordinated and integrated solid waste sector is just recently developed with the taking over by the Federal government from the local authority sinve 1 September 2011. The recycling rates of waste in particular the solid waste is still below the govenrment expectation or target. With reccycling rate at less than 20%, we are increasing our efforts to ensure that 3R programmes and activities is carried out sustainably. The new SWPCM Act implemtented recently provides the authority with the catalyst to further enhance the 3R technologies in the country. However, the capital cost, operational and maintenance expenditure still remain a main constraint to the introduction of modern,environmentally friendly and effective technologies.