



## **Solid waste management in Malaysia: a comparison study**

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MALAYSIA A TROPICAL country consists of two parts, East and West Malaysia with an area of 131,588km<sup>2</sup> and 198,161km<sup>2</sup> respectively. Malaysia's political neighbors are Thailand and Singapore in the north and south of West Malaysia, Brunei and Indonesia are situated at the boundaries of East Malaysia. The population of Malaysia is now 20.7 million with an annual rate of population growth of 3.2 per cent. The ethnic composition of Malaysia's population is highly varied which makes it one of the prime examples of multi-racial society in the whole world. 56.6 per cent of the total population is Malays, 32.8 per cent is Chinese, 10.1 per cent Indians and the rest are made up of Arabs, Sinhalese, Eurasians and Europeans. Malaysia is endowed with rich natural resources: its forests, crude oil, tin and cultivated land. Agriculture, including forestry and fishing, is the dominant sector of the economy, besides industry, manufacturing, construction and tourism. In Malaysia, the agencies and institutions that are involved directly in solid waste management are the Federal Government, state Government and local Authorities.

Today, rapid economic growth in Malaysia has contributed to its fast development in term of the expanding of urban areas, population growth, greater level of consumption and changes of lifestyles. Unfortunate consequence to this rapid development is the resulting of waste and pollutants, which have adverse impacts to human and the environment. Unable to cope with the large quantities and various types of waste produced, industries and local authorities have at times ended up with environmentally unsound disposal methods and ad-hoc based solutions.

### **Methods**

Two local authorities in Malaysia which are Kuala Lumpur City Council (KLCC) and Petaling Jaya Municipal Council (PJMC) and two local councils of the United Kingdom: Dundee City Council (DCC) and South Ayrshire Council (SAC) were chosen for the comparison studies. The scope of the research was mainly on the municipal solid waste stream and activities, therefore the parties that provide and use the services were the main focus. Data were gained from literature, government and non-government documentation and media review and analysis. Interviews and sites visits were conducted in order to understand and experience the practical observation. Interviews are also used to fill in the gaps concerning policy and legislation application in the action taken by both countries.

### **Findings and discussions**

In Malaysia, waste management services: collection and disposal forms an integral part of the local authority administration. For providing these services, householders are charged through their house assessment payments. House assessment payment is charged based on the size of the house. In other word, bigger house will be charged more compared to smaller house though the number of people living in bigger house is not necessary more than smaller house. Apart from the above, local authorities are also responsible for the implementation and enforcement of pollution control strategies. The refuse Collection and Disposal by-laws 1983 is the basis for the local authorities to enforce waste disposal regulations. Although storage bins are mentioned in the by-laws, there is no standard set-up in the approved types of containers in regards to the size and materials to be used and issues on separation of waste. Furthermore, collection, transportation and disposal of waste were not referred in the by-laws as well as restriction on dumping procedures and improper locations. Without by-laws procedure, standard of services of proper waste management will decline. In 1995, 5.5 million tonnes of domestic waste and commercial waste were generated in Malaysia. This amount has increased in 1998 to 6 million tonnes per year and expected to increase to 8 million tonnes by the end of year 2000. These issues have brought the attention of the government. Consumers, industry and the mass media as they realise that the scale and the diversity of the problem needs a solution (Shafii, 1994). In term of waste characteristics generated, in general it varies depending on the areas it is produced. Greater consumerism tend to generate more packaging materials such as paper and plastics compared to organic waste. In Malaysia, urban areas generate more paper and plastics waste compared to the rural areas, which generate more organic waste. As waste composition varies, and it changes according to the changes of lifestyle, monitoring of its changes should be conducted. Unfortunately, in Malaysia, there is no periodical analysis of waste generation which results with an outdated data. Without these data any future planning and development are almost impossible.

In Malaysia, most of the municipal solid waste goes to the landfill or dumping sites. The non-hazardous and general industrial waste are often treated together. The existing dumping sites mostly are not properly engineered and managed. Pollutants that are released or discharged from the disposal sites could contaminate groundwater

system, flora and fauna which will eventually cause direct and indirect impact to human's life. Waste management in Malaysia has thus several major implication issues to address: environmental impacts, pollution of water, land and air, increase in volume of waste, changing types of waste and accelerating financial implications.

### **National level approaches to waste management**

Some attempt has been made by the Government to address the problems, and the need for changes and development of policies and programmes. It is observed that waste management is an important element within any national approach to environmental planning and management. Due to the constraints and burden faced by the federal, state and local authorities in planning and implementing an effective system: the operational, technical resources, financial and infrastructural, privatisation of solid waste management was suggested as an alternative to improve the service and at the same time to reduce financial burden of local authorities. The objectives of this privatisation are to provide an integrated, efficient and effective technologically advanced management system that will enhance the quality of the environment through the practices of resource recovery and waste minimisation.

### **Lesson learned**

Taking an overall view, making waste work is not just looking at the technologies involved which here referred to as the hardware technology but also the policy, legislation and management practices, the "software" technology. Several factors were identified on a comparison of PJMC and KLCC with the situation in DCC and SAC, on looking at why both councils in Malaysia fails to manage their waste.

### **Lack of government's commitment and policy implications.**

It can be seen from both case studies that it is the lack of both external (national level) and internal (local level) guidance, which cause problems for waste management at the municipality level. For example, legal definition of waste in Malaysia is not clearly defined. With this vague definition, the type of waste is difficult to determine especially to people in charge of waste management, which include waste producers, councils and also private waste collectors. Whereas in UK in general and DCC specifically, waste is clearly defined and classified in the law. In the waste policy, DCC is guided with national waste policy following the government's commitment towards European Council (EC) and international policy have clearly outlined their waste management strategy compared to DBKL and most Malaysian's local authorities which failed to do so.

Lack of enforcement from the government level is always an issue. Any national legislation and policy on waste, which does exist, is not well documented. Most of the

legislation has been devised to ensure cleanliness, sanitary conditions and public health and is not directly formed for the management of the municipal solid waste. While in Dundee, legislation specifically on waste is well guided and updated. Clear legal definitions of waste and classification of waste (for example controlled waste, non-controlled waste and special waste) are well documented. Furthermore, with national strategies and targets set up by the government, the council is committed to the target. In Malaysia, PJMC was the first local council to develop recycling activities, which started in 1990. After three years implemented it realised that it was a failure. Then it started again in 1996 but still PJMC cannot claim the recycling activities were a success. The reason was, there was no target being set up, neither at local level nor at the national level. The commitment and interest from the central government was never experienced. These were among the failure factors.

As for the general collection and disposal activities, there are no by-laws or other regulations being made because these activities are carried out by the local authorities themselves. Any collection and disposal made by the private contractors for the commercial, industrial and part of the householders are not properly regulated. Compared to DCC, under UK's Environmental Protection Act 1990, collection and disposal of waste are heavily regulated even though these were among local's responsibility. Adding to that, guidelines from central government are also provided.

### **Lack of local authority's commitment**

Government leadership is vital in publicising the importance of good solid waste management by educating the nation as well as supporting any actions taken by the local Authorities in improving the waste management systems. For KLCC and PJMC, there are no non-statutory guidelines for them to follow in order to manage waste compared to DCC and SAC. Local councils in UK where they are guided by guidelines such as the Waste Management Papers (WMP), Waste Strategy sets out by the Government and enforcement strategy.

Looking at the leadership role on solid waste management in Malaysia at present, municipal solid waste is under the responsibility of the Economic-Planning Unit of the local Government and Housing ministry, whereas the Department of Environment of the Ministry of Environment and Science is responsible on issues regarding pollution. When this happens, there is always a conflict of interest. A single independence body should be established where waste is concerned. By doing this, in designing a solid waste management system, aspects of physical, technical, legal, institutional, financial, environmental and sociocultural can be drawn together into single integrated policy.

### **Conclusions**

Looking at the overall view of Malaysian solid waste management system, Malaysia has a lot to improve. Software and hardware tools should be introduced in the

solid waste management. More legislation should be passed together with the enforcement. Above all, there should be a target on what to achieve before any programme is set up.

### Reference

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