

## IMPORTANT OF ADEQUATE LEGISLATION FROM THE PERSPECTIVE OF SOLID WASTEMANAGEMENT POLICY

HAILY HENRY DUSIM<sup>1</sup>, MOHAMMAD TAHIR MAPA<sup>2</sup> & JENNY @ JANEY MOSIKON<sup>3</sup>

<sup>1,3</sup> *Universiti Teknologi MARA, Sabah Branch, Locked Bag 71, 88997, Kota Kinabalu, Sabah*  
e-mail: <sup>1</sup> *Haily302@sabah.uitm.edu.my*, <sup>3</sup> *jenny508@sabah.uitm.edu.my*

<sup>2</sup> *Universiti Malaysia Sabah, Jalan UMS, 88400, Kota Kinabalu, Sabah, Malaysia*  
e-mail: *hermauk@gmail*.

### ABSTRACT

Most studies on sustainable solid waste management issues have been commonly focused on the technical perspective although studies also indicated that these issues are also strongly influenced by other aspects such as policy, social, economy, institutional and the environment. The aspect of policy plays an important role towards the sustainability of solid waste management, however studies focusing on analysing the solid waste management from the perspective of policy are still lacking. Therefore, the aim of this paper is to highlight the aspect of policy in the context of solid waste management specifically in the adequacy of the legislation. Previous studies have pointed out that adequate legislation plays an important factor towards influencing the aspect of policy in solid waste management as with the lack of adequate legislation, the policy may not be effective towards achieving sustainable solid waste management. In addition, previous studies may have not clearly explained the meaning of the term adequate legislation and the elements under adequate legislation. Therefore, the purpose of this paper is to explore the meaning of adequate legislation and to identify the important elements that make up an adequate legislation. Findings of this study have show that an adequate legislation refers to having comprehensive legislation and specific legislation. This study also discovers that comprehensive legislation and specific legislation is considered as the two important elements under the adequate legislation.

Keywords: policy aspect; adequate legislation; comprehensive legislation; specific legislation

### ABSTRAK

Kebanyakan kajian mengenai isu-isu pengurusan sisa pepejal yang mampan telah biasa memberi tumpuan kepada perspektif teknikal walaupun kajian juga menunjukkan bahawa isu-isu ini juga dipengaruhi oleh aspek-aspek lain seperti dasar, sosial, ekonomi, institusi dan alam sekitar. Aspek dasar memainkan peranan penting ke arah kemampanan pengurusan sisa pepejal, namun kajian memberi tumpuan kepada menganalisis pengurusan sisa pepejal daripada perspektif dasar masih kurang. Oleh itu, tujuan kajian ini adalah untuk mengetengahkan aspek dasar dalam konteks pengurusan sisa pepejal secara khusus dalam kecukupan undang-undang. Kajian terdahulu telah menunjukkan bahawa undang-undang yang mencukupi memainkan faktor penting dalam mempengaruhi aspek dasar dalam pengurusan sisa pepejal dengan kekurangan undang-undang yang mencukupi, polisi ini mungkin tidak berkesan ke arah mencapai pengurusan sisa pepejal yang mampan. Di samping itu, kajian sebelum ini mungkin tidak menjelaskan makna perundangan yang mencukupi dan unsur-unsur di bawah undang-undang yang mencukupi. Oleh itu, tujuan kajian ini adalah untuk meneroka makna undang-undang yang mencukupi dan untuk mengenal pasti elemen-elemen penting yang membentuk dasar yang mencukupi. Dapatan kajian ini adalah penting terutamanya dari segi panduan kepada kerajaan tempatan untuk menganalisis sama ada dasar pengurusan sisa pepejal sedia ada mempunyai undang-undang yang mencukupi. Oleh itu, maklumat ini boleh digunakan sebagai panduan kepada kerajaan tempatan ke arah membangunkan dasar pengurusan sisa pepejal yang lebih berkesan dan mampan.

Kata kunci: aspek dasar; undang-undang yang mencukupi; undang-undang yang komprehensif; undang-undang tertentu

## **1. Introduction**

The concept of sustainable development became a global consensus after the Earth Summit in the year 1992, with its aim towards reducing the negative impact of human activities towards the environment. The establishment of Agenda 21 is seen as one of the most significant outcomes of the Earth Summit, as it helps countries to design proper policy framework towards achieving more environmental sustainability. Besides, it also clearly mentions about how to handle waste management issues (Wu, 2011). Waste management is considered as a central part under the concept of sustainable development. Wastes are usually referred to as something that pose negative impact towards the environment. Meanwhile, sustainable waste management refers to the activity of utilising the natural resources more efficiently (Saat & Ali, 2014).

Waste collection rate in Malaysia is estimated around 70% out of the total waste generated and 80 to 95% of waste collected is disposed at landfills. Unfortunately, uncollected waste is frequently dumped illegally particularly by those who stay in the rural areas. Unlike most developed countries, Malaysia still relies heavily on landfills in managing their waste and sadly majority of it landfills are not hygienic hence, it affects the sustainability of solid waste management in Malaysia (Aja & Al-Kayiem, 2013). Economic expansion and the increase of urbanisation in general contributed towards the increase of generation of solid waste , 2001) which made solid waste issues are considered as the most controversial issues in Southeast Asian countries, including Malaysia (Hassan et al.).

According to World bank (1999) report, waste management is among the three major environmental issues commonly suffered by most local government, which also faced by Malaysian local government due to unsustainable practise of landfill. Besides, most Asian countries still practise open dumping to manage their waste (Agamuthu, Fauziah, & Noorazamiah Aiza, 2007). According to Agamuthu and Fauziah (2011), with the new Malaysian waste management policy and regulation known as Solid Waste Management and Public Cleansing Act 2007 (Act 672), sustainable landfill in Malaysia may be possible to be achieved. However, according to Abas and Wee (2014), the implementation of the policy did not go as planned. In fact, Saat and Ali (2014) claimed that the existence of policy gap in the Malaysian solid waste management system and national policy may have lead to unsustainable solid waste management.

Previous studies (Zurbrügg, Vögeli, Potting, & Buuren, 2011) have commonly focused on the aspect of technical to improve the sustainability of solid waste management and only few studies have studied on the aspect of policy but the current trend shows that the aspect of policy is gradually getting attention from researchers (Agamuthu, Khidzir, & Hamid, 2009). Based on the concept of integrated sustainability waste management system (ISWM), it is argued that the sustainability of solid waste management is not only influenced by the aspect of technical or technology alone, but it is strongly influenced by aspect of policy, socio-cultural, environmental, economic and institutional (Guerrero, Maas, & Hogland, 2013).

According to Guerrero et al. (2013), the lack of adequate legislation will affect the effectiveness of solid waste management policy delivery. Developed countries like Japan and United Kingdom (UK) strongly believed that adequate legislation is the key factor towards effective implementation of solid waste management policy (ABRELPE & ISWA, 2013; Defra, 2007). However, previous studies may have not clearly described the term adequate legislation and the important elements for adequate legislation. Therefore, the purpose of this paper is to explore the meaning of adequate legislation and to identify the important elements which should consist under the adequate legislation. The finding of this study is significant to be used as a guideline especially for the local government to analyse whether they have adequate legislation

and by having this information it may guide the local government towards developing more sustainable solid waste management particularly from the aspect of policy.

## **2. Definition of Solid waste management**

Solid waste management system is defined as process associated with managing waste generation, storage, collection, transfer and transport, processing and disposal of solid wastes (Tchobanoglous, Theisen, & Vigil, 1993). In Malaysia, the solid waste management is categorised into three major categories and each category is assigned to be handled by specific government department. For instance, municipal solid waste is under the responsibility of Ministry of Housing and Local Government (MHLG), schedule or hazardous waste is under the responsibility of Department of Environment (DOE) and clinical waste is under the responsibility of Ministry of Health (MOH) (Manaf, Samah, & Zukki, 2009). Although several Asian countries define its solid waste based on its classification as stipulated in the legislation, the truth is that the municipalities have to manage everything thrown by the public (Shekdar, 2009).

## **3. Research Approach**

To achieve the objectives of the study, secondary data is employed. Collecting data from secondary data is done by reviewing the past literature (Literature review of policies, laws and regulations relating to solid waste management), documents (official legal and policy documents), published statistics like census data, statistical abstract, data base, annual report (solid waste master plan), journals, as well as information from unpublished sources and other relevant sources to guide the research towards obtaining primary information. The data that has been collected is analysed using thematic analysis, it involve the process of sorting the data into a specific theme so that it can be analyse to achieve the research objectives.

## **4. Exploring Adequate Legislation**

This section attempts to discuss adequate legislation in the context of waste management system. As mentioned in the previous section, Guerrero et al. (2013) pointed out that adequate legislation influences the performance of waste management system particularly in the aspect of policy. According to Asase, Yanful, Mensah, Stanford and Amponsah (2009), the improvement of the existing integrated waste management system in the city of London is due to adequate solid waste legislation as they have adequate legislation pertaining to waste handling, treatment and disposal. In addition, its existing legislation at the municipal, provincial and national level support their waste management system.

However, the lack of adequate legislation pertaining to solid waste management may affect the system negatively. For instance, local government that do not have adequate by-laws may presume that waste from the demolition and construction work is part of their responsibilities even though waste from construction is not considered as household waste. However, some local government do provide service to dispose this construction waste but they have to pay for the service at different charges (Coffey & Coad, 2010). Hence, adequate regulation specifying on what are the responsibilities of the industry practitioners in managing their waste is important (Sin, Chen, Long, Goh, & Hwang, 2013). For example, non-hazardous waste and hazardous waste particularly from the industry should be manage differently, but due to poor enforcement and lack of specific legislation cause the municipalities to treat these as the same. In fact, hazardous waste should be dealt with special procedure, including special transportation, treatment and disposal (Coffey & Coad, 2010). In Pakistan, apart from the poor enforcement, the absence of adequate local legislation pertaining to e-waste makes it difficult to manage the growing number of e-waste (Umair, Björklund, & Petersen, 2015). These issues are also

experienced in Nepal where the lack of adequate policy and legal framework on how to manage it solid waste including hazardous waste and the involvement of private sector have negatively affect it solid waste management system. Even though a National Solid waste Management policy has been developed by the country, the policy is not effective since there are no programs and plans introduced under the policy to achieve its objective (Apo, 2007). Hence, without regulation, it becomes a challenge to manage waste at the general level (Gertsakis & Lewis, 2003). Polices and regulation are important instruments to ensure a sustainable solid waste management system (Wilson, 2007).

According to Ngoc & Schnitzer (2009), even though Asian countries have variety of law that relevant to waste management, the majority of Asian countries do not have laws that cover the whole area in waste management. Currently, their waste management authorities have unclear institutional framework and ambiguous descriptions of their functions and task possibly due to lack of adequate legislation. Based on the study conducted by Apo (2007) on solid waste legislation from eleven Asian countries participating in their study, solid waste legislation is still not comprehensive as compared to legislation pertaining to water and air pollution. This is supported by the study conducted by Periathamby Agamuthu, Fauziah, & Noorazamiah Aiza (2007), where they claimed that inefficiency of the government in developing countries is frequent particularly in Asian countries. In Malaysia, disputes have been going on for years pertaining to issues of solid waste management and comprehensive laws of solid waste management. For instance, although the issues of recycling and waste recovery need serious attention, its existing piece of legislation including the Local Government Act 1976, Drainage and Building Act 1974 and Environmental Quality Act 1974 are not established to specifically address the issues. As a matter of fact, there is lack of comprehensive legislation that covers the entire aspects of solid waste management at the State or Federal level particularly in the aspect of recycling. Issues of inadequate focus and capacity in the solid waste management system at the entire levels still exists, though it is administered by the Federal, State and Local government. In general, a specific legislation for solid waste management at federal level is missing except for legislation pertaining to environmental protection and management (Ministry of Housing and Local Government, 2006). Moreover, specific regulation to manage the municipal waste activity such as waste collection, disposal and treatment is also unavailable at the federal level (Environmental Conservation Department & Solid, 2002).

In addition, based on previous literatures, inadequate legislation in developing countries like Cameroon made the government unable to address the issues of waste handling and disposal effectively because they have incomprehensive waste management legislation. Hence, establishing a comprehensive legislation framework has been proposed to improve its waste management (Manga, Forton, & Read, 2008). Likewise, according to Ezeah & Roberts (2012), the capital city of Nigeria, Abuja has weak legal framework to support its waste management thus, it is proposed that a comprehensive analysis towards the entire aspect of legislation related to municipal solid waste management need to be conducted so it can complement and support the Integrated Waste Management (IWM) Model and Waste Hierarch objectives. Singapore strongly believe that, solid waste management will be more effective when it is accompanied with comprehensive laws (Foo, 1996)

Apart from comprehensive legislation, clear or specific legislation is also important. For example, although there are many recycling programs which have been introduced by the Malaysian government to encourage recycling, the absence of clear guidance on how to recycle affect the recycling program in Malaysia (Lau, 2004). Therefore, it is imperative to formulate sustainable regulations, policies and programmes at the national, state and local authority level (Mohd Nasir Hassan, Rakmi Abdul Rahman, Theng Lee Chong, Zakaria, & Awang, 2000). Promoting recycling among the stakeholder will be difficult if there is no laws that compel the stakeholder to recycle, hence introducing compulsory law regarding to recycling is important to

motivate the people to recycle (Ministry of Housing and Local Government, 2006). For example, local government in Sabah do not have the power to force the public to segregate their waste due to lack of regulation or mandatory regulation and official guidelines on how to properly separate municipal solid waste (Fatma Sabariah, Manaf, & Mariani, 2013). Interestingly, according to the study conducted by Nguyen, Zhu and Le (2015), introducing specific regulation on household waste separation will enhance public trust and may potentially lead to public participation. Hence, the Malaysian government has introduced a new legislation framework known as Solid Waste and Public Cleansing Act (Act 672), where it has the elements of clarity in term of it legislation particularly in waste separation (Yiing & Latifah, 2014).

Other elements which need to unambiguous are clear procedures on how to perform inspection and enforcement at the national, provincial and local levels as these will improve the performance of solid waste management policy (Abas & Wee, 2015). Meanwhile, ambiguous laws affect the effectiveness of solid waste management system, this is experienced by developing countries like Malaysia and Philippines, hence specific law is important (Hezri, 2010). For example, although the by-laws of local government in Malaysia generally compel the waste generator to store their waste in an appropriate container so that waste collection will be more efficient, many local governments do not set any specific regulations on the garbage bin standard such as in term of its size, material and colour. Hence, it is common to see the resident to use garbage bins from different sizes and forms. Besides, there is also no specific guideline or standard towards what sizes of plastic bags to store the waste (Apo, 2007). Hence, specific legislation is crucial.

The element of specific legislation is vital. Abuja, the capital city of Nigeria, has an inadequate legal framework to promote it municipal solid waste management. Its existing legislation that is relevant to solid waste management has a broad environmental legislation functions and it is not distinct to municipal solid waste management. Hence, the element of specificity in their legislation is absent, which is necessary for the legislative machinery in executing their daily operation. Furthermore, the ambiguous strategies demonstrated in achieving the general objectives of its municipal solid waste management make the matter even worse with the existing situation of inadequate legislation (Adama, 2007; Imam, Mohammed, Wilson, & Cheeseman, 2008). Moreover, in Brazil specific regulation is crucial in order to maintain its port solid waste management. Its government has come up with several specific rules on it port solid wastes management focusing on the port operations, cargoes and ships. However, although the Brazilian government has specific rule on its port solid waste management, Jaccoud & Magrini (2014)ed in their study recommend that the specific rules on solid waste management should be revised to ensure it to be more effective. Hence, this shows that the element of specific legislation is crucial in attaining adequate legislation.

The case in Ethiopia on its unavailability of specific legislation pertaining to its healthcare waste management (HCWM) is another example on the importance of the need to have specific legislation. The legal framework for managing the healthcare waste in Ethiopia can be established with the current legislation provision but the provision under the existing legislation lack the element of comprehensiveness and specificity particularly in describing harmful healthcare waste and its group. Moreover, it also does not specify the healthcare facilities (HCFs) legal obligations in managing, transporting, disposing and treating healthcare waste and reporting and documentation safekeeping (Haylamicheal & Desalegne, 2012).

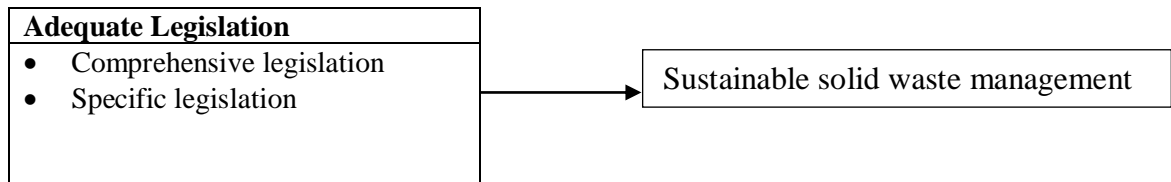
In short, the absent of specific legislation detailing how and what in the management of solid waste have affected the effectiveness of the management in these developing countries. Mrayyan & Hamdi (2006) believed that the specific legislation available in developed countries such as specific laws pertaining to how to manage industrial waste which basically cover all the waste

system elements that include waste treatment, storage, final disposal and generation provide positive support towards it waste management system. Thus, there is a need to have comprehensive and specific legislation to ensure the success of the management of solid waste.

## **5. Summary of Adequate legislation**

The previous section attempt to explore the term of adequate legislation as highlighted by Guerrero et al. (2013). Although the previous studies discuss in the previous section does not explicitly define adequate legislation, it somehow can be summarised that adequate legislation in the context of solid waste management refers to having a comprehensive and specific legislation (refer figure 1). Based on the previous section it can be summarise that comprehensive legislation means the solid waste management legislation must able to cover the rest of the waste elements systems, such as waste generation, storage, collection, transfer and transport, processing and disposal of solid wastes. In other words, comprehensive legislation is achieved when the legislation does not only attempt to address one particular element in the waste system elements but it should consider the rest of the elements since solid waste management is interconnected with each other. Hence, to effectively address the issues of solid waste management it should involve all elements. For example, to ensure the recycling legislation is successful, the legislation should not only focus on recycling alone but should also consider the other waste elements that may influence the success of the recycling policy like, waste separation and collection.

Furthermore, the second element is specific legislation. Specific legislation means, the legislation should be clear or unambiguous. Having a specific or clear legislation may facilitate the implementation of the legislation. For instance, to ensure the waste separation policy to be effective, a specific legislation on waste separation should be in placed so the public know what they can do and not do. Therefore, having a specific legislation will facilitate the implementation of the policy more effectively.



**Figure 1: Elements under Adequate Legislation**

## **6. Conclusion**

The main objective of this study has been to explore the meaning of adequate legislation and to identify the important elements that make up an adequate legislation. Findings of this study have show that an adequate legislation refers to having comprehensive legislation and specific legislation. This study also discovers that comprehensive legislation and specific legislation is considered as the two important elements under the adequate legislation. Solid waste management policy considered as having adequate policy if both elements (comprehensive legislation and specific legislation) are exist. Hence, this information can be used as a guide to the local government towards developing more effective and sustainable solid waste management policy.

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