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Critical Review on Construction Waste Control Practices: Legislative and Waste Management Perspective

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Abstract

Construction waste that emerges from construction site has become a major concern to the nation due to its negative footprints on the environment. Undeniably, huge amounts of construction waste will cause destructive effects on the environment if they are not managed properly. Therefore, the productions of construction waste need to be controlled and managed by the stakeholders in the construction industry. This paper conducts a review of existing waste control practices adopted by the responsible parties in Hong Kong and Malaysia in order to minimize the environmental impacts of construction activities. This paper also embraces the differences and similarities of waste control practices in both countries reviewed. In addition, the gap identified will form a basis of encyclopaedic research on construction waste control practices in the future. In turn, the research will lead to a better sustainable construction waste control framework, which complies with the Malaysian legislation and regulations. The study is very useful for construction stakeholders to promote a comprehensive efficacy of construction waste control practices and also furnish precious sources for other countries in controlling and managing wastes at construction sites in order to answer the challenge towards sustainable development.

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1. Introduction

Globally, waste volumes are increasing quickly, even faster than the rate of urbanization. Currently, the world cities are generating about 1.3 billion tonnes of solid waste per year. This volume is expected to increase to 2.2 billion tonnes by 2025. As countries urbanise, their economic wealth increases. As standards of living and disposable incomes increase, consumption of goods and services increases, which results in a corresponding increase in the amount of waste generated (Hoomweg & Bhada-Tata, 2012).

Local governments in Asia are currently spending about US\$25 billion per year on urban solid waste management. This amount is used to collect more than 90 percent of the waste in high-income countries, between 50 to 80 percent in middle-income countries, and only 30 to 60 percent in low-income countries. In 2025, it is anticipated that the spending on solid waste management activities would increase by 200 per cent in 2015 (Hoomweg & Thomas, 1999).

Although solid waste is generated by different household and economic activities, the construction industry has always been considered as one of the major producers of waste (Al-Hajj & Hamani, 2011). Construction waste is not by nature an environmentally friendly activity; the sector has always been a major generator of construction waste (Lachimpadi, Pereira, Taha, & Mokhtar, 2012; Shen & Tam, 2002).

Realizing the negative impact of construction waste to the environment, governments at both national and international levels have introduced various policies and regulations to make construction activities more sustainable (Akadiri & Fadiya, 2013). This includes countries in the East Asia and Pacific (EAP) regions, Hong Kong and Malaysia (Hoomweg & Bhada-Tata, 2012). In 2013, with a total population approximately 7.2 million, Hong Kong had recorded a gross national income per capita of USD38,420 (World Bank, 2014a). Meanwhile, Malaysia having the population of approximately 29.7million had recorded a gross national income per capita of USD10,430 (World Bank, 2014b). This puts Hong Kong as a high-income country, while Malaysia as the nation at upper middle-income country in the region (World Bank, 2014a; World Bank 2014b).

This paper reviews the existing waste control practices adopted in Hong Kong and Malaysia by comparing the construction waste control practices in terms of legal instrument, method of waste treatment and other practices between both countries.

2. Construction and demolition (C&D) waste control practice in Hong Kong

Like most modern cities, the need to attain sustainability is compelling in Hong Kong, which has suffered rapid environmental degradation in the course of achieving a spectacular economic boom since the early 1970s (Chung & Lo, 2003). In line with construction booming, in the year of 2012, Environmental Protection Department (EPD) in Hong Kong had reported that 13,844 tonnes per day of waste had been dumped at landfills.

Realizing the threat of C&D waste to the environment, the local industry has been promoting measures such as establishing waste management plans, reduction and recycling of construction and demolition wastes, providing in-house training on environmental management, and legal measures on environmental protection (Shen & Tam, 2002).

2.1. C&D waste legal instrument

The main authorities involve with construction waste in Hong Kong are the Environment Protection Department ('EPD') and the Civil Engineering and Development Department ('CED') (Ming-zhi & Gao, 2006). The Hong Kong government has issued various laws and ordinances to reduce waste generation and protect the environment by legal enforcement. These include Water Pollution Control Ordinance (1980), Noise Control Ordinance (1989), Waste Disposal Ordinance (WDO, 1980), Air Pollution Control Ordinance (1985) and Environmental Impact Assessment (EIA) Ordinance (1998) (W.Y Tam, Shen, Fung, & Wang, 2007) as shown in Table 1.

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