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Construction Waste – Potentials and Constraints

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Abstract

The construction industry is a major generator of wastes and other seemingly unusable materials that can easily be discarded as solid waste. Basically, contractors are responsible for maintaining a sanitary work environment and to dispose of their waste from their working area. Since the presence of the contractors is contingent to the construction period, the primary method of getting rid of the construction waste is to haul them away from the work sites, without much regard to the long term repercussion of their actions. As the focus of compliance in most construction sites is on the maintenance of sanitary surroundings, the management methods for waste which considers reuse, recycling and resource recovery are not clearly followed through. With this prevailing conduct of business, the construction industry misses its mark in contributing to correct waste management. Materials, be it excess from construction process, or residual from demolition, can still be usable should the contractor exert efforts in finding ways to use them rather than dispose them. At worst, when not fully checked by the supervising engineer, these materials end up dumped in the surroundings, which can potentially cause contamination to the environment. This paper presents the issues of construction wastes encountered by the author in projects that he worked on, with some suggestions on how these materials easily regarded as waste can be reused. In addition, the author also presents some issues that lead to lax implementation and enforcement of proper waste management in the work sites. Finally, recommendations are presented that the construction industry can espouse in order to improve the compliance of the construction industry to an ecological solid waste management.

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1. Introduction

The construction industry is considered one of the drivers of economy and nation building. Its contribution to

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the gross national product is considerable and its positive ramifications on the local and regional economy can be tremendous as it opens up employment and business opportunities. Infrastructure projects such as road, major bridges, railways, ports/airports and other major civil works are avenues for major capital influx into the areas where work will be undertaken. The impact to downstream economy can be immediate at the start of the construction and can continue during the operations itself. It is for this reason that local residents get excited when new major infrastructures are established in their locality. Coupled with the promised economic and financial benefits of the construction industry, the activities themselves generate considerable waste materials at the worksites, workers' campsites, and ancillary facilities. These waste materials, generally termed as construction waste, are part of construction materials' packaging, containers, and spent machinery and equipment parts that are no longer usable. Hence, with no practical usage of these materials in the construction, there is no reason to keep them and are, therefore, subsequently disposed.

If these materials are improperly managed and disposed, they can cause some irreparable and irreversible adverse impact to the environment. Consequently, people's health and welfare can be compromised; foremost of all will be the workers and subsequently, the residents themselves in the vicinity of the project sites. It can end up in a scenario wherein the promised development is overshadowed by an environmental catastrophe.

Construction wastes are generally bulkier, heavier and at times more toxic than domestic waste. Their disposal to a local sanitary landfill or dumpsite can prove to be less of a solution but more of an aggravation of the issue in the long run. In some instances, the contractor resorts to inappropriate or even illegal practice such as: (i) illegal dumping in deserted areas; (ii) concealing garbage in wooded or forested areas; (iii) mixing with domestic waste; (iv) burying in abandoned sites; (v) dumping in waterways; and (vi) burning.

On the other hand, a good portion of these construction wastes can still be usable with proper planning and their usage can be a solution itself to the burgeoning waste issues that the communities and the construction industry face. One would just have to be creative and resourceful in finding solutions to these issues.

In the environmental monitoring work of the author for the construction of major infrastructures funded by international funding institutions (IFI's), solid waste management at the worksites is always a recurring issue. In the urban setting, the construction industry figures in the real estate sector where issues on waste generated follow the localities regulations. Quite considerable attention is accorded on this sector as they had been more visible and exposed to public opinions in their surrounding localities.

A new perspective should set in. Materials accumulated at the worksites are not problems to be removed, but rather as opportunities to be utilized, which can be of some financial benefits as well as means to conserve the resources from the environment. Subsequently such viewpoint can contribute to sustainable construction activities that the industry should rightly aspire for, as their share in the overall efforts at protecting the environment.
This paper deals with construction waste issues for major infrastructures (particularly transport infrastructure, which the author has experienced), which straddle a number of communities and localities with their respective levels of solid waste management implementation.

2.0 Review of Literature

This paper is mainly derived from direct experience of the author on the encountered issues of construction waste in the transport infrastructure that he worked on. Much of the literature and printed documents used as reference were project reports (progress reports, EIAs/EMPs), technical specifications, contract documents and correspondences. In addition, desktop review of electronic reference sources was also conducted to gain a wider perspective. There is a considerable volume of literature pertaining to construction and demolition wastes. However, most of them refer to erected buildings rather than on civil works infrastructure.

A lot of literature on construction waste available over the internet as well as on printed articles deal withthe real estate sector such as that of presented in an article by V. Nitivattananon & G.Borongan (2007). In some instances, some waste management aspects of civil works involve recycling asphalt, concrete, steel and other metals.