

Investigating Sustainable Construction and Demolition Waste Management Practices in South Africa

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Abstract : South Africa is among the emerging economy, which has a policy and suitable environment that dynamically stimulates waste management practices of diverting waste away from landfill through prevention, reuse, recycling, and recovery known as the 4R-approaches. The focus of this paper is to investigate the existing structures and processes that are environmentally responsible, then determine the resource-efficiency of the waste management practices in the South Africa construction industry. This paper indicates the results of an investigation carried out by using a systematic review of several related literatures to assess the sustainability of waste management scenarios with secondary material recovery to pinpoint all influential criteria and consequently, highlights a step by step approach to adequately analyze the process by using the indicators that can clearly and fully value the waste management practices in South Africa. Furthermore, a life cycle Analytical tool is used to support the development of a framework which can be applied in measuring the sustainability of existing waste management practices in South Africa. Finding shows that sustainable C&D waste management practices stance a great prospect far more noticeable in terms of job creation and opportunities, saving cost and conserving natural resources when incorporated, especially in the process of recycling and reusing of C&D waste materials in several construction projects in South Africa. However, there are problems such as; inadequacy of waste to energy plants, low compliances to policies and sustainable principles, lack of enough technical capacities confronting the effectiveness of the current waste management practices. Thus, with the increase in the pursuit of sustainable development in most developing countries, this paper determines how sustainability can be measured and used in top-level decision-making policy within construction and demolition waste management for a sustainable built environment.

Keywords : construction industry, green-star rating, life-cycle analysis, sustainability, zero-waste hierarchy

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