

**DEVELOPING AN EFFECTIVE WASTE
MANAGEMENT PLAN FOR BUILDING
CONSTRUCTION SITES**

Janaka Prasanna Edirisinghe

188737 D

Degree of Master of Science /Master of Engineering

Department of Civil Engineering

University of Moratuwa

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Bopitige Janaka Prasanna Edirisinghe

188737 D

Thesis/Dissertation submitted in partial fulfilment of the requirements for the degree
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Declaration

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Name of the Supervisors: Prof. Chintha Jayasinghe, Dr Kasun Kariyawasam

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Abstract: Construction and demolition waste is a major problem to the environment as 40% of worldwide waste is generated from the construction industry. Waste material is generated in building construction sites as a result of construction, demolition, renovation, excavation, and site clearances. Construction waste constitutes reusable or recyclable materials such as concrete, steel, wood, ceramic tiles, bricks, cement blocks, cement mortars and paints. However, 35% of construction waste is directly dumped into the landfills without any further reusing or recycling due to the lack of onsite or offsite sorting. Since a considerable amount of waste materials is ended up as waste, management of the construction waste is very much a crucial economic and environmental challenge to project stakeholders. This research examined the applicability of various waste sorting methods that are essential before reusing and recycling. Three waste sorting methods were considered, namely: (i) onsite sorting based on material type (ii) onsite sorting based on economic value, and (iii) offsite sorting based on economic value. These methods were studied based on eleven influencing factors through a questionnaire survey on Construction Project Managers, Planning Engineers, Site Engineers, and Quantity Surveyors who were at 30 sites across Sri Lanka. Based on the responses, the most applicable sorting method was found as '(ii) onsite sorting based on economic value'. The most influencing factors for all sorting methods were 'management effort', 'market for recyclables', 'waste sortability', and 'site space'. 'Management effort', the most critical factor, was found to be a result of 'lack of waste sorting out process', 'high labour involvement in sorting process', and 'lack of market for recyclable products. This research therefore encourages the construction project stakeholders to leverage 'onsite sorting based on economic value' with increased "Management effort" to improve waste sorting for reusing and recycling and contribute towards reducing worldwide waste.

Key Words: Construction waste, Construction and Demolition waste; obstacle for waste sorting; Construction waste sorting techniques; waste

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List of Abbreviations

Abbreviation	Description
CIDA	Construction Industry Development Authority
COWAM	Construction Waste Management Project

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