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Attitudes and perceptions of construction workforce on construction waste in Sri Lanka

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Figures

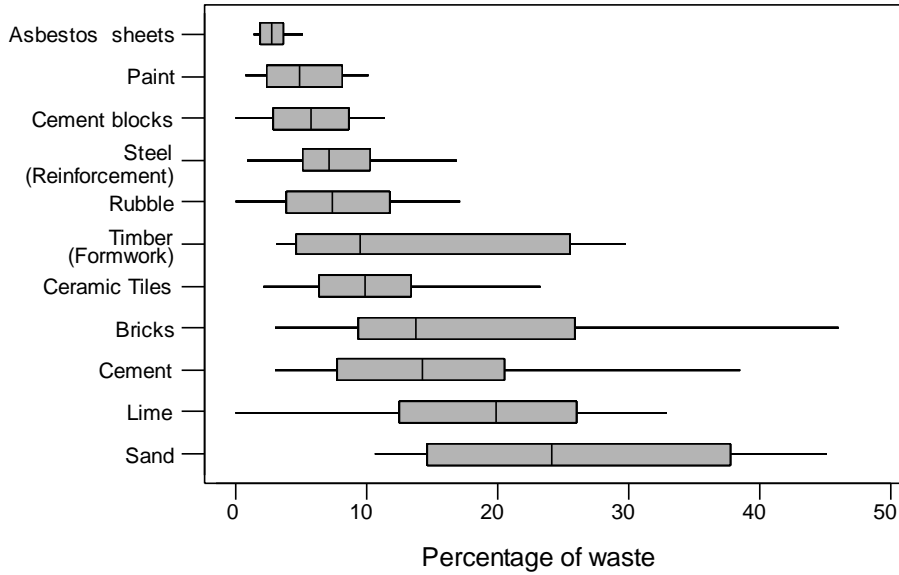


Figure 1: Box plot for wastage of materials

Source: Journal of Built-Environment Sri Lanka

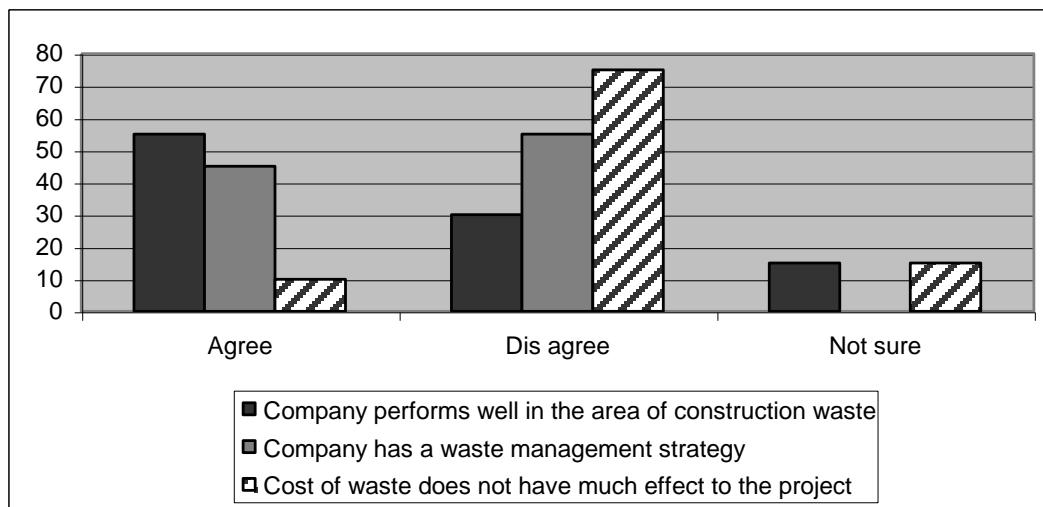


Figure 2: Responses of the estimators regarding the company performance towards waste, knowledge of the existing strategy and the effect of cost of waste

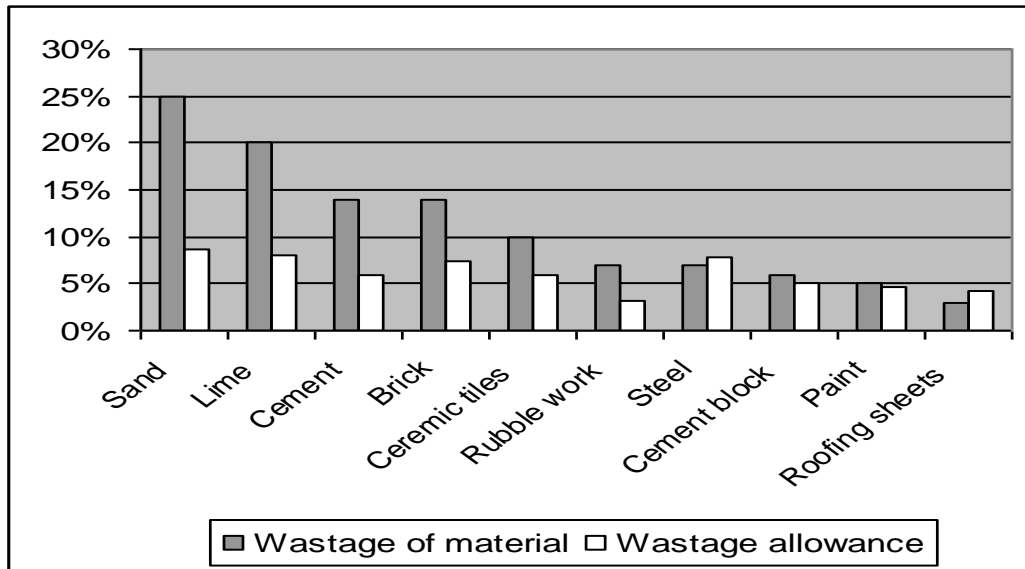


Figure 3: Difference between the actual waste and the wastage allowances made during the pre-construction stage

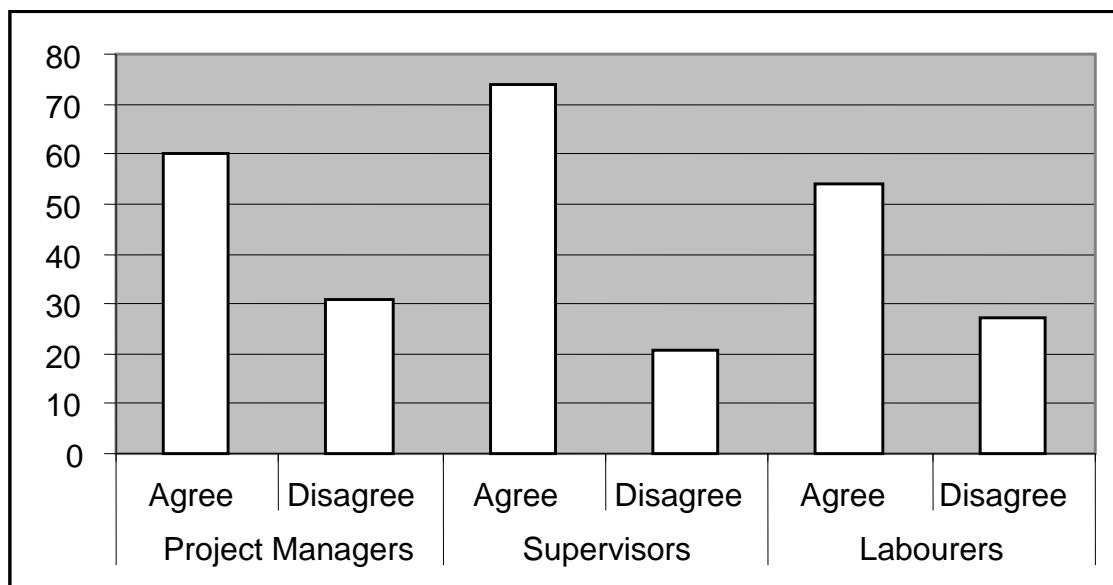


Figure 4: Existence of waste management strategy

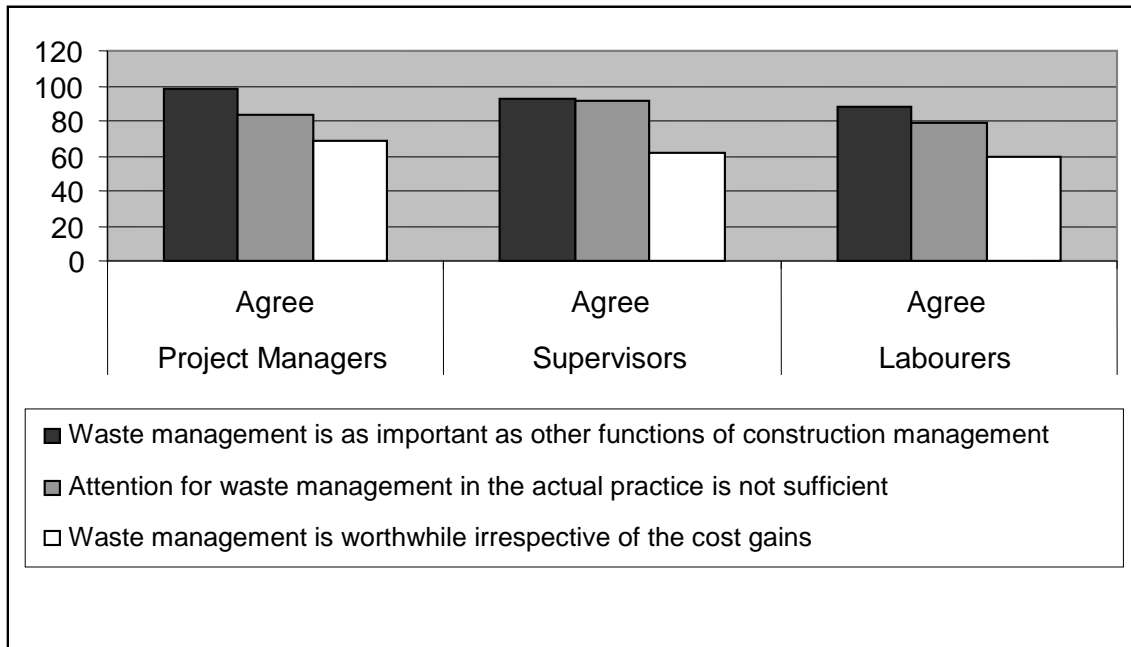


Figure 5: Importance of waste management

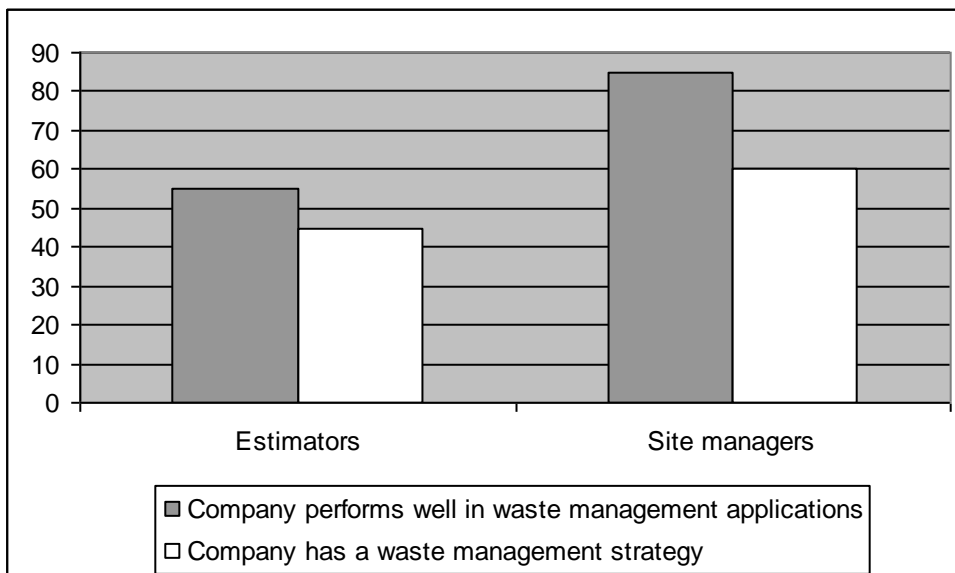


Figure 6: Comparison of perceptions between Estimators and Site managers

Tables

Table I: Sources and causes of construction waste (Ekanayake and Ofori, 2000)

Design	<p>Lack of attention paid to dimensional co-ordination of products</p> <p>Changes made to the design while construction is in progress</p> <p>Designer's inexperience in method and sequence of construction</p> <p>Lack of attendance paid to standard sizes available on the market</p> <p>Designer's unfamiliarity with alternative products</p> <p>Complexity of detailing in the drawings</p> <p>Errors in contract documents</p> <p>Incomplete contract documents at commencement of project</p> <p>Selection of low quality products</p>
Operational	<p>Errors by trade persons or labourers</p> <p>Accidents due to negligence</p> <p>Damage to work done caused by subsequent trades</p> <p>Use of incorrect material, thus requiring replacement</p> <p>Required quantity unclear due to improper planning</p> <p>Delays in passing off information to the contractor on types and sizes of products to be used</p> <p>Equipment malfunctioning</p> <p>Inclement weather</p>
Material Handling	<p>Damages during transportation</p> <p>Inappropriate storage leading to damage or deterioration</p> <p>Materials supplied in loose form</p> <p>Use of whatever material which are closed to working place</p> <p>Unfriendly attitude of project team and labourers</p> <p>Theft</p>
Procurement	<p>Ordering errors</p> <p>Lack of possibilities to order small quantities</p> <p>Purchased products that do not comply with specification</p>

Table II : Components of attitudes

Component	Characteristics
Affect	Emotional reactions
Cognition	Internalised mental representations, beliefs, thoughts
Behaviour	The tendency to respond or overtly act in a particular way

Table III: Sample of the questionnaire survey

Category	Number of questionnaires issued	Number of respondents	% Response
Estimators	24	20	83
Project Managers/Site Managers	55	55	100
Supervisors	107	107	100
Workers	586	586	100

Table IV: Priorities at the pre-construction stage

Factor	Rank
Profit	1
Overhead of the project	2
Location	3
Type of client	4
Contingencies	5
Waste allowance	6

Table V : Barreirs for waste management practices

Barrier	Rank
Attitudes of the workers cannot be changed	1
Difficulty in changing existing work practices	2
There is no stated company policy on waste management	3
Lack of industries norms	4
Time consuming (rather than reusing a broken brick, it is easier to use a new one)	5
There is no incentive to manage waste	6
Requires more personnel	7
It is not perceived as part of the manager's job	8
Waste management is not cost effective	9

Table VI: Priorities of site activities

Activity	Rank
Monitoring the quality of work	1
Monitoring the progress of work	2
Cost control	2
Assessing the resource requirements, procurement and incorporating them in the work	4
Safety management	5
Holding sites meetings to discuss issues and problems	6
Waste management	7