

## The Influence of Government Regulation on Waste Reduction Among Kuantan Malaysian Construction Industry

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### ABSTRACT

This paper examined the significant relationship between government regulation and construction waste management among Malaysian construction industries. Survey was conducted among 10 contractors registered G7, using proportionate stratified random sampling, out of which 10 questionnaire were collected for data analysis with five point Likert scale categories of waste management from previous studies, statistical analysis affirmed a significant positive relationship between government regulation and construction waste management in Malaysian construction industries through Statistical Package for the Social Sciences.

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## 1. Introduction

The term waste was originated from the Latin word "vastus", meaning to abolish, to leave, deserted, or to fail to build [11]. Wastes could be intended as undesirable things or useless things. For this reason, waste is considered as materials that are undesirable because they are believed to have no value. The expression "waste" is defined as an object that are left by the owner (this is the subjective definition of waste) [12].

Construction waste is perceived as a waste created from the construction activities [14]. It includes different materials subsequent from different activities such as earth materials, for instance; undergrowth, soil, and rocks as an effect of excavation work, levelling of land, clearance of site, among others [2]. For example, the wastes that could be created from street construction project such as, metals, wood, glass paper, concrete, blocks, brick, steel, and soil [13].

In the same line of perspective, construction waste could be described as a large number of waste materials created by the construction, excavation of buildings and civil infrastructure. Therefore, many waste materials from construction projects are almost the same, where the

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quantities created will be different greatly based on the type and nature of the project, and the waste created which is an effect of construction projects [5,6].

Waste management is seen as keeping away or reducing to the barest minimum the influence of contaminated waste materials from the instant surroundings, free from the things of contaminated waste materials [1]. Which need proper management such as “the collection, recycle, handling and waste disposal, involving the proper maintenance of disposal at construction sites [3,4]. Therefore, the aim of this paper is to address the following research objective: To evaluate the relationship between government regulation and construction waste management.

## **2. Research Methods**

### *2.1 Design of the Study*

This paper is cross-sectional design in nature. In which data was collected once in Kuantan, Pahang. In this case, the state was regarded as a stratum [9,10]. All 10 data was collected from the construction industries in Kuantan to respond to the questionnaire. The population was drawn among 10 registered G7 contractor operating in Kuantan construction industries with a proportionate stratified random sampling techniques [7,8].

### *2.2 Data Collection*

In this paper, a sample size of 10 piloted survey was conducted on the population of 10 construction industries. In an attempt to fit the expected sample size, the return rate of similar waste management studies with. Therefore, the sample in this paper can be considered adequate. The 10 questionnaires were distributed physically across the industries. Therefore, out of 10 distributed questionnaires, only 10 valid and useable questionnaires were returned. Thus, this response was considered high when compared with prior studies.

### *2.3 Statistical Analysis*

Statistical Package for Social Science (SPSS) version 21.0 was used to analyze the collected data. The demographic profile of the industries and respondents were analyzed with descriptive statistic. More so, the goodness of fit was ascertained by reliability test. Descriptive statistics like the standard deviation, percentage and mean score were analyzed. Using scale categories interpretation, values (range) were ascribed to the 5-point likert scale used in the questionnaire in ascending order as follows: 0.1= Strongly Disagree, 0.3= Disagree, 0.5= Moderate, 0.7= Agree, 0.9= Strongly Agree. Interprets the response of the respondent from survey [15].

### *2.4 Reliability Analysis*

The cronbach’s alpha coefficient was used to ascertain the reliability of all the items in this study. This was done in order to be sure that the scales adopted in this study were not ambiguous and that the items within a component were measuring the same fundamental component. Thus, higher cronbach’s alpha coefficient is a sign of greater consistency among the items for each component and the assurance that the measurements are reliable. This study followed the minimum reliability threshold level, where 0.7 is regarded acceptable. However, all the Cronbach’s alpha coefficient values received in this study were above the 0.7 minimum threshold.

**Table 1**  
 Summary of pilot test reliability of construct

Construct	Total item	Cronbach's Alpha
Government Regulation	11	0.807
Waste Reduction	11	0.802

### 3. Results and Discussion

Out of 10 respondents that participated in this survey, are Project manager; quantity surveyor; 60%, Engineer; architects; 20 % clear of work and 20 % other employees. Their years of working experience was rated from 5 to 10. The highest of working experience was 10 years, followed by 8 years and 7 years respectively. As for gender, the percentage of male respondents were 60% compared to 40% female. This was followed by company's ownership construction project has been executed with 70 as the highest, followed by 8 years and 7 years respectively. Finally for industries have a waste management procedure, the percentage of Yes was 70% compared to 30% SNo

**Table 2**  
 Demographic Breakdown of the Respondents

Respondents	Frequency	Percentage (%)
<b>Position in the industries</b>		
Project manager	0	0
Quantity surveyor	0	0
Engineer	6	60.0
Architects	0	0
Clear of work	2	20.0
Other employees	2	
<b>Work experience (Years)</b>		
Lowest working experience	1	10.0
Highest working experience	4	40.0
<b>Gender</b>		
Male	6	60.0
Female	4	40.0

**Table 3**  
 Demographic Breakdown of the Company

Respondents	Frequency	Percentage (%)
<b>Project has been executed</b>		
Lowest project has been executed	1	10.00
Highest project has been executed	3	30.00
<b>Company have a procedure</b>		
Lowest procedure	3	30.00
Highest procedure	7	70.00

#### 3.1 Pearson Correlation

Pearson correlation was the correlation matrix for independent variable and dependent variable.

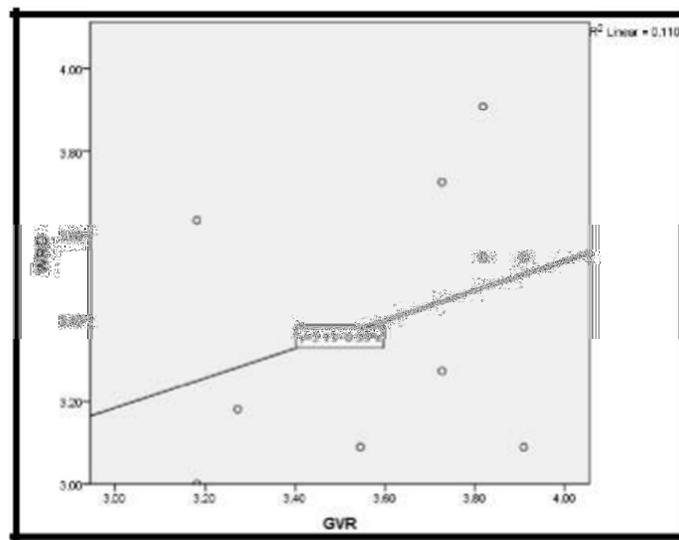
As depicted in Table 4 and Figure 1, the result showed that government regulation (independent variable) has a moderate correlation ( $r=0.332$ ) at the 1% significance level(2tailed) with construction waste management (dependent variable). It has shown above value of significant is 0.01 (1%) and was more than 0.05. Therefore, there is a significant positive related with P-value

of .349 and N is 10. Here is a significant relationship between government regulation and construction waste management among Malaysia construction industries.

**Table 4**

Pearson Correlations of independent variable and dependent variable

		Government regulation	Construction waste management
Government regulation	Pearson Correlation	1	.332
	Sig. (2-tailed)		.349
	N	10	10
Construction waste management	Pearson Correlation		1
	Sig. (2-tailed)		
	N		10



**Fig. 1.** Scatter design of the correlation

#### 4. Conclusion

This study has investigated the relationship between the effects of government regulation on waste reduction among Malaysian construction industry. It was discovered that there was a significant positive relationship between effects of government regulation on waste reduction among Malaysian construction industry. This showed that government regulation have a paramount role in curbing future waste occurrence in Kuantan Malaysian construction industries projects. The theoretical and the empirical result in this paper has added to the growing body of knowledge within this domain. Which might also serves a framework towards waste reduction in Kuantan construction industries.

Therefore, future studies can assess the construction waste management and its implementation in other industries to give higher reliability to the application of government regulation. Likewise, it would have been more comprehensive to study personality as another

independent variable besides government regulation and double the sample size that was used in this paper.

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