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Study and Analysis of Factors Influencing the Work Performance in Construction Projects

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Abstract: *The study is carried out to improve the work performance in construction projects based on the factors collected from field investigation and literature reviews. Success and failure of construction project depends upon its work performance. Construction Industries faces many challenges such as failure, delay in construction etc. There are 32 factors identified and grouped under seven major factors such as cost, time, quality, health and safety, resource, productivity, and environment. A questionnaire survey report consist of 32 questions which are distributed to 30 planning engineer or project manager and then report was prepared with two sections. Section A consists of details of the company and the respondent. Section B consists of questionnaire prepared using the factors mentioned above. The respondents were asked to rank the factors from one to five. Then the survey statistics were analysed and results were discussed to get the better view of the areas to be concentrated so that the work performance remains as planned.*

1. Introduction:

[1] Stated that the measurement of project performance can no longer be restricted to the traditional criteria, which consists of time cost and quality. [2] These systems provide a mechanism to focus on wider business performance measures, which enable organizations to implement business improvement.[3] Stated that proposing a performance measurement process conceptual framework for construction firms. [4] Stated that an organization overall performance is influenced by the existing organization structure that is inherently complex with many interrelated components and modeled the dynamic performance of construction organization. [5] Stated that project success measures with four success dimension : Achieving design goals, which is associated with the preparation of contract; tangential benefit to the end user, which depends on customer satisfaction regarding final product; benefit to the developing organization, which depend on executing the project successfully; and benefit to the national infrastructure and the firm that wishes to improve their technological infrastructure during development process.[6] Examined the use of information technology based management tools as a self auditing PM systems. As a result a dynamic performance measurement system was developed in line with the integrated performance measurement system reference model. [7] Stated that cost and schedule control are considered crucial measures of capital project success leading to client satisfaction. setting the criteria for success of any construction project must take into account the client's level of satisfaction as a measurement of project performance. [8] Identified a number of project success criteria used for measuring the success of mass house building projects. These included environmental impact; customer satisfaction; and the traditional measures such as cost, time and quality. [9] Developed a performance measurement system for construction companies by using the BSC perspective.[10] Developed a model for integrating strategy formulation and performance measurement in organization.[11] stated that monitoring and controlling the aspects of quality, time are the main objectives of any construction project. [12] stated that performance measurement systems are imminent in the construction firms. [13] stated that proposed a contractor selection system that incorporates the contractor performance prediction as one of the criteria for selection .[14] noted that once time and cost have taken into consideration, then project success can be measured according to the percentage of profit ,absences of claims and agreement with the owner. [15] Proposed a consolidated framework presenting different criteria for measuring project success. The criteria cover many aspects of project success such as time, safety, participation satisfaction, user satisfaction and expectations, environmental performance, profitable value, quality and cost.

2. Aim of project:

To determine the factors influencing the work performance in construction projects. To analyse and rank the factors influencing the work performance. To give the suggestion by improving the work performance in construction projects.

3. Methodology:

It was based on survey of related works and data collected through questionnaires. The survey presented 30 building construction project work performance factors generated on the basis of field investigation and literature reviews. The questionnaire was structured into 7 major groups which include: cost, productivity, time, environmental, quality, health& safety, and resource related factors. In the questionnaire, respondents were asked to indicate based on their experience, level of importance of each identified 32 factors of work performance on a five point likert scale. The identified 32 factors affect the work performance were listed under 7 groups based on field investigation, literature reviews and data collected. Relative importance index method is used in the data analysis. This method was used to ranking the overall factors and to conclude various professional opinions in construction project.RII is calculated as given below

- RII=∑W|(A*N)
- Where,
- W is the weight given by each factor
- W ranges 1.Strongly disagree 2.disagree 3.average 4.agree 5.strongly agree
- A is the highest weight 5
- N is the total number of responses.

Table -1 : Overall factors influencing the work performance

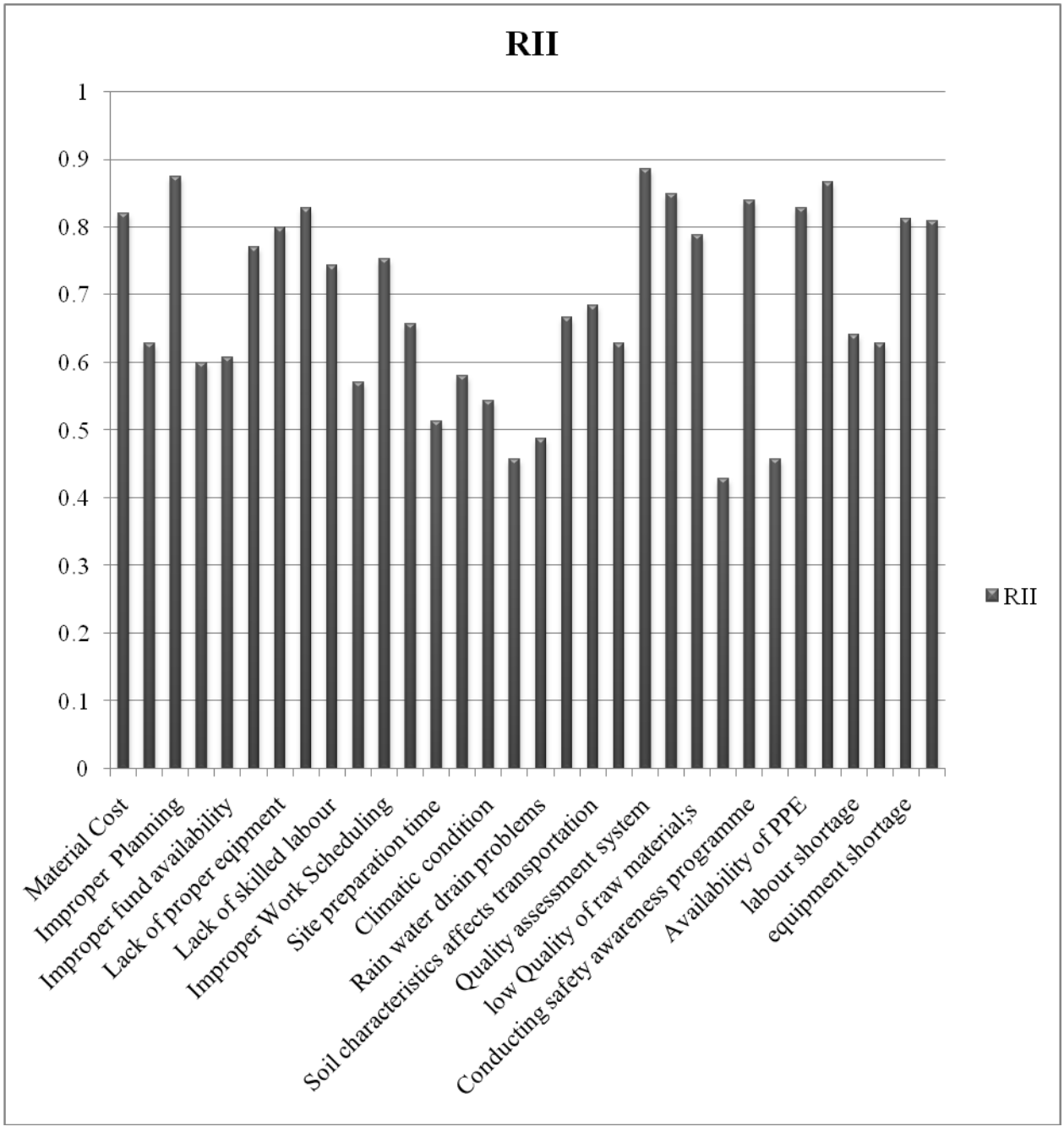
S.NO	INFLUENCING FACTORS	RII	RANK
	COST FACTOR		
1	Material Cost	0.821	8
2	Equipment Cost	0.628	22
3	Improper Planning	0.867	3
4	Small construction mistakes and design changes	0.6	24
5	Improper fund availability	0.608	23
	PRODUCTIVITY FACTOR		
6	Inadequate Labour Allotment	0.771	13
7	Lack of proper equipment	0.8	11
8	Improper Work break down structure	0.829	6
	TIME FACTOR		
9	Lack of skilled labour	0.743	15
10	Unfavorable weather condition	0.571	26
11	Improper Work Scheduling	0.753	14
12	Delay of material Shortage	0.657	18
13	Site preparation time	0.514	28
14	Time spent on defect rectification	0.581	25
	ENVIRONMENTAL FACTOR		
15	Climatic condition	0.543	27
16	Noise level	0.457	30
17	Rain water drain problems	0.487	31
18	poor air quality affect labour	0.667	17
19	Soil characteristics affects transportation	0.685	16
	QUALITY FACTORS		

20	Quality issues in material	0.629	21
21	Quality assessment system	0.886	1
22	Quality training program	0.849	4
23	low Quality of raw materials	0.789	11
24	Any deviation from design mix	0.428	32
	HEALTH AND SAFETY FACTORS		
25	Conducting safety awareness program	0.839	5
26	Any reportable accidents	0.457	28
27	Availability of PPE	0.829	6
28	Availability of adequate facility for first aid	0.875	2
	RESOURCE FACTORS		
29	labour shortage	0.642	19
30	material shortage	0.629	20
31	equipment shortage	0.812	9
32	sudden repair &unavailable of spare parts	0.809	10

Table - 2: Summarized critical factors

S.NO	CRITICAL INFLUENCING FACTORS	RII	RANK
1	Quality assessment system	0.886	1
2	Availability of adequate facility for first aid	0.875	2
3	Improper Planning	0.867	3
4	Quality training program	0.849	4
5	Conducting safety awareness program	0.839	5
6	Availability of PPE	0.829	6
7	Improper Work break down structure	0.829	6
8	Material Cost	0.821	8

Chart – 1: The graph represents RII value of factors influencing the work performance



4. Conclusion and Discussion:

The main factors influencing the performance of construction Industry are Quality assessment system, availability of adequate facility for first aid, improper planning, quality training program, conducting safety awareness program, availability of PPE, Improper WBS, and Material cost. Improving the quality assessment system and giving proper adequate facility for first aid. Proper planning should be done by the project managers. Increasing the availability of PPE in the site for working individual. Proper WBS should be maintained in site. Follow the safety awareness program before joining the work in site. Project managers should notice the above factors to achieve the goal in estimated time with estimated cost.

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