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# Addressing Construction Delays in Construction Projects in Gwalior

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Abstract: Construction enterprise is one of the sizable members to the economic boom and improvement of cambodia. Two predominant demanding situations are proscribing the performance of the construction industry in india, which might be terrible cost and schedule overall performance of the development initiatives. Consequently, the purpose of this study is to fill an essential knowledge gap with the aid of identifying the diverse attributes for production undertaking put off, the usage of the residential constructing tasks as a start line. Comments from a survey administered to the contractors and consultants. The purpose of the research take a look at is to develop a postpone evaluation gadget for assessing and lowering the impact of put off in indian production projects. The technique used number one and secondary facts. Number one data had been obtained the usage of exceptional participatory research approaches (pra) which include, in-depth interview, consciousness institution discussions and questionnaires. The outcomes found out the elements that contributed to the causes of delays in building production task

Keywords: Delay, Causes of delay, Effect of delay, Relative important index, Chi- test Statistics.

## I. INTRODUCTION

Numerous factors can contribute to delays on a undertaking and studying the reasons of delays is an critical task for ameliorating any capacity conflicts or claims (schumacher 2007). According assaf and hazni, (2006), production delays play a key role in any mission success. The delay elements are very crucial inside a creation venture and it's important that each one stakeholders have to have positive expertise regarding this issue so as for the venture to be completed efficiently and satisfactorily. Most delays in constructing construction tasks are complicated and plenty of researchers emphasizes at the high fee and the associated threat associated with litigating tactics braimah, 2008; long, 2004). The building creation industry in nigeria has grown significantly over the past years. Lack of understanding throughout the development industry is one of the important thing issues in the enterprise (magid, 2006). There is robust evidence of inconsistent performance of nigeria production projects each by international corporations and local construction contractors (lcc) and the fashion is growing swiftly (naha, 2008). Building tasks are reportedly failing across all of the key performance in nigerian production industries. In line with theodore et al, 2009), the dramatic shift in the capability and extent of the nigerian creation region over the last decade warrants a scientific analysis of the delays. Mansfield (2013), located that well timed finishing of production undertaking become a signal of undertaking efficiency. However, construction approaches depend upon numerous variables and unpredictable elements that arise from diverse assets, together with performance of involved party, availability of sources, website online conditions and contractual situations. It's miles therefore vital to ascertain the important thing factors impacting delays in the constructing construction enterprise and establishes the connection between the critical attributes for assessing the impact of those factors. There may be limited look at concerning the intrinsic factors affecting on delays in building construction venture in India. Therefore, the look at is essential in an try to verify the factors affecting delays on constructing creation tasks in phrases of well timed transport.

## II. OBJECTIVES

The main objectives of this study include the following:

- A. To identify the causes of delays in construction projects.
- B. To identify the approaches for solving the problems regarding delay.
- C. To minimize the effect of delay in construction project.
- D. To test the importance of the causes of delay between two groups.



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## III. METHODOLOGY

A questionnaire survey was conducted of construction professionals representing various stakeholders involved in construction projects in India

#### A. Questionnaire Design

The questionnaire was designed based on critical factors were identified that contributed to the causes of delays. A questionnaire survey was developed to assess the perceptions of various construction professional of the relative importance of causes and the effects of construction delays. The questionnaire was designed into two sections: Section A; section B. Section A is to obtain the requested background information about the respondents. Section B is to obtain the information on factors that contribute to the causes of delays in construction projects from the perspective of construction professionals. A total twenty eight resource related factors were identified under three broad categories namely manpower related, material related and equipment related issues. Thecritical factors are listed in Table 1. A five point Likert scale (1 very low, 2 low, 3 moderate, 4 high, 5 very high) was adopted where respondents were asked to rank the importance and impact of a particular factors on delay in one of their selected projects.Descriptive statistics techniques namely Relative Importance Index (RII) has been used to highlight the relative importance of critical factors as perceived by the respondents (Assaf et. al, 1995; Faridi and El-Sayegh, 2006; Iyer and Jha, 2005; kmaraswamy and Chan, 1998).

### B. Analysis of Data

The data obtained was analyses to determine the relative importance of the various factors that contribute to causes of construction delays. The method for data analysis consist of 2 steps:

### C. Relative Importance Index (RII)

Assess the relative significance among risks, previous literatures work study suggests establishing a risk significance index by calculating a significance score for each risk. For Calculating the significance score, multiply the probability of occurrence by the degree of Impact. The significance score for each risk assessed by each respondent can be obtained through the model

$$S_{j}^{i} = A_{j}^{i} * B_{j}^{i}$$

Where  $S_{j}^{i} =$  Significance score assessed by respondent j for risk i

 $A^{1}_{j}$  = Occurrence of risk i, assessed by respondent j

 $B_{j}^{1}$  = degree of impact of risk I, assessed by respondent j.

By averaging scores from every one of the reactions, it is conceivable to get a normal importance score for each hazard, and this normal score is known as the hazard record score and is utilized for positioning the dangers. The model for the figuring of hazard list score can be characterized as

$$R_s^i = \sum_j^T = 1 S_j^i / T$$

Where  $R_s^i$  = index score for risk i

 $\mathbf{S}_{j}^{i}$  = Significance score assessed by respondent j for risk i

T= total number of responses

Applicability of Test Results to Construction Industry -

## D. Hypothesis Analysis

To test for hypothesis chi- test statistics was used to determine the significance of the level of importance attached to factors causing delays in building construction project (Odeh and Battaineh, 2005).

$$X_{C}^{2} = \sum (O_{i-Ei})^{2} / E_{i}$$

Where:

- 1) The subscript "c" are the degrees of freedom.
- 2) O is the observed value(s).
- 3) E is the expected value(s).
- 4)  $X^2$  chi –test statistcs



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#### **IV. RESULT AND DISCUSSIION**

NTI	ERVIEW NO.	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	1 6	7	8	1 9	0	21	al	Mean( m)	SD( s)	C.O.V=( s/m)
S.N	CATEGOR					1			1			1		1		1				1						
0	EY Delav in		1	1	1		[	1		[	[							[					1			
1	progress payments to																									
	contractors /consultant	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 4	0. 4	8.8	0.419	0	0											
	Conflicts																									
2	joint-	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	0.485	0	0
	Slow	4	4	0	4	4	0	0	4	4	0	0	0	4	0	4	4	4	4	0	0	4	2	0.485	0	0
3	decision- making by	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				0.214285
	owners Unrealistic	4	4	6	4	4	6	4	6	4	4	4	4	4	6	4	4	4	6	6	4	6	9.8	0.466	0.1	714
4	imposed contract	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	.4.				
	duration Technology	6	4	6	6	4	6	6	4	4	4	4	6	6	4	6	4	6	4	4	6	4	10	0.476	0	0
5	changes &	0	0			0			0			0	0	0	0	0	0	0	0	0		0	1.4			0.1.47007
	from client	0. 4	0. 4	0. 4	0. 6	0. 6	0. 6	0. 4	0. 6	0. 6	0. 6	0. 6	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 6	4	0. 6	14. 2	0.676	0.1	0.147887 324
	Routine of government																									
6	authorities and	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.			0.388888
	approvals Duration is	6	6	8	4	6	8	4	4	4	4	6	4	6	4	4	6	6	4	6	6	2	8	0.514	0.2	889
7	not enough																									
1	constructing	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	0.405		0.201923
	the project Change	6	4	6	6	6	6	4	4	6	4	4	6	6	4	6	4	4	6	4	4	4	4	0.495	0.1	077
8	orders by client during	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.			0.201923
	construction Delay in	4	4	6	8	4	6	6	6	6	6	4	4	4	6	4	4	4	4	4	4	6	4	0.495	0.1	077
	approving shop drawing																									
9	and sample	0	0		0	0			0			0	0	0	0	0	0	0	0	0	0					
	client	0. 6	0. 6	0. 4	0. 6	0. 6	0. 6	0. 4	0. 6	0. 4	0. 4	0. 6	0. 6	0. 4	0. 6	0. 6	0. 4	0. 6	0. 6	0. 6	0. 4	0. 6	11. 2	0.533	0	0
10	Difficulties in financing																									
10	the project by contractor	0. 4	0. 6	0. 4	0. 6	0. 4	0. 4	0. 6	0. 6	0. 4	0. 6	0. 8	0. 4	0. 6	0. 6	0. 6	10. 4	0.495	0.1	0.201923 077						
11	Rework due	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
	mistakes	4	4	4	4	6	4	4	4	6	4	6	6	6	4	4	4	4	4	6	4	4	9.6	0.457	0	0
12	Methods	0. 4	0. 4	8	0. 4	4	0. 4	4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 6	0. 4	0. 4	0. 6	0. 6	0. 4	0. 4	9.6	0.457	0	0
	Poor communicati																									
13	on and coordination	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	12.			0.172131
	of labor	6	8	8	8	6	8	6	4	6	4	6	6	4	4	4	6	6	4	8	6	4	2	0.580	0.1	148
14	on problem	0.	0. s	0.	0. v	0. 4	0.	0.	0.	0. 4	0.	0.	0. 6	0.	0. 1	0.	0.	0. 4	0. 1	0. v	0.	0.	12.	0.580	0	0
	Inadequate	0	0	0	0	4	0	0	0	4	0	0	0	0	4	0	0	4	4	0	0	0		0.360	0	0.10.4010
15	Contractor Experience	0. 4	0. 6	0. 4	0. 6	0. 6	0. 8	0. 6	0. 4	0. 6	0. 8	0. 4	0. 4	0. 4	0. 6	0. 6	0. 4	0. 6	0. 4	0. 8	0. 4	0. 6	11. 4	0.542	0.1	0.184210 526
16	Construction planning	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				0.190909
	errors &	6	4	4	4	4	8	6	6	4	6	6	6	4	4	6	4	4	6	6	4	8	11	0.523	0.1	091



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	equipment																									
	Mistakes and																									
17	discrepancies																									
17	in contract	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	0.405	0.0	0.403846
	documents Price level	4	4	4	6	6	6	4	4	4	4	6	4	4	4	4	4	6	6	8	4	8	4	0.495	0.2	154
10	changes of																									
18	material in	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	market	4	2	4	4	4	4	4	4	4	4	4	2	4	6	4	2	2	4	4	4	4	7.8	0.371	0	0
19	Lack of	0. 4	0.	0. 4	0. 4	0. 4	0. 4	0. 4	0.	0. 4	0. 4	0. 4	0.	0.	0. 4	0. 4	0. 4	0. 4	0.	0. 6	0. 4	0. 4	84	0.4	0	0
• •	Contract	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.4	0.4	0	0.269230
20	Management	2	4	4	2	4	4	4	2	4	4	4	4	2	4	4	4	4	4	6	4	4	7.8	0.371	0.1	769
	Preparation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
21	of drawing	0. 4	0. 6	0. 4	0. 6	0. 4	0. 4	0.	0. 4	0. 6	0. 6	0. 4	0. 8	0. 4	0. 6	96	0.457	0.1	0.21875							
	Quality			· ·						0					-		0			0		0	2.0	01107	0.1	0.21070
22	assurance/	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	control Dalay in	2	4	6	4	6	6	4	4	6	6	6	6	2	2	6	6	4	4	6	4	6	10	0.476	0.2	0.42
	performing																									
23	inspection	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	and testing	6	6	4	6	4	4	6	2	4	4	4	4	6	2	4	4	4	6	8	6	4	9.8	0.466	0.1	0.214
24	Mistake in	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10			
24	documents	4	4	0. 6	4	4	0. 6	0. 4	4	4	0. 6	0. 6	0. 6	0. 6	4	4	0. 6	4	4	0. 6	0. 6	0. 6	4	0.495	0.1	0.201
	Lake of	-			-	-		-	-	-	-		~	-	-	-	-	-	-		-	-	-			
25	interest in the	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	project	4	6	6	4	4	6	4	4	6	4	6	6	2	2	6	4	4	4	6	4	6	9.8	0.466	0.1	0.214
26	payment	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	from client	4	4	4	6	4	4	4	4	6	6	6	4	4	4	4	4	6	4	8	4	6	10	0.476	0.1	0.21
	Lack of																									
27	consultant																									
21	construction	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
	projects	4	4	4	4	6	4	6	6	4	4	6	6	6	4	6	4	4	6	8	6	8	11	0.523	0.2	0.381
	Delay in the																									
	approval of contractor																									
28	submission																									
	by the	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	11.			
	engineer	6	8	4	6	6	6	4	6	4	4	6	4	4	4	4	6	6	6	8	6	6	4	0.542	0	0
29	Material	0. 4	0. 8	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0.	0. 4	8.6	0.409	0	0							
20	Shortage and	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.				
30	Material	4	6	6	4	4	4	4	4	8	4	6	4	4	2	4	4	4	4	4	2	4	9	0.428	0	0
31	Materials Price	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13			
51	Fluctuations	8	8	6	8	8	8	8	6	6	8	4	6	6	2	6	6	6	6	6	4	8	4	0.638	0	0
	Late						İ		İ	İ		İ				İ	İ	İ								
32	procurement	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	12.	0.500	0.1	0.170
	of materials	8	8	4	8	6	6	6	6	6	6	6	4	6	4	6	6	6	6	8	2	6	4	0.590	0.1	0.169
22	materials																									
33	types during	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	11.			
	construction	8	6	4	8	6	6	6	6	4	6	4	6	6	4	6	6	4	6	6	4	4	6	0.552	0.2	0.362
	Sudden increase in																									
34	quantity	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.			
	needed	6	4	4	6	8	6	8	4	4	6	6	4	4	6	4	4	4	4	6	4	6	8	0.514	0	0
25	Delay in						0	0	0	0	0	0	0		0	0	0	0	0	0	0	0				
35	Deliverv	0. 4	0. 4	0. 6	0. 4	0. 6	0. 6	0. 6	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0.	4	9.2	0.438	0	0
	Shortage of				· ·		-	-	· ·		Ļ.	· ·	<u> </u>		<u> </u>	· ·	, ·	· ·	<u> </u>	<u> </u>	-	· ·			-	~
36	Labour	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.		0.	0.	0.	0.	12.			
	Supply	4	4	4	4	6	4	6	4	6	4	4	6	4	4	6	4	4	4	6	2	2	8	0.609	0.1	0.164
37	Labour Productivity	0. 8	0. 8	0. 6	0. 6	0. 8	0. 6	0. 4	0. 6	0. 8	0. 6	0. 6	0. 4	0. 6	0. 4	0. 4	0. 4	0. 6	0. 4	0. 8	0. 4	0. 6	12.	0 580	0.1	0 172
L	1. outourity	5			5		5	-	5	5	5	5	<u> </u>	5			<u> </u>	5	<u> </u>	5	- 1	5		5.550	5.1	0.172



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38	Equipment Availability and Failure	0. 6	0. 6	0. 6	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 6	0. 6	0. 4	0. 4	0. 4	0. 4	0. 6	0. 6	0. 6	0. 6	0. 2	0. 4	10. 4	0.495	0.1	0.201
39	Personalconfl icts among labours	0. 8	0. 8	0. 6	0. 6	0. 6	0. 6	0. 4	0. 4	0. 4	0. 8	0. 4	0. 6	0. 4	0. 4	0. 6	0. 6	0. 6	0. 6	0. 8	0. 4	0. 4	11. 8	0.561	0.2	0.355
40	Labour exodus /evacuated from the region	0. 6	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 6	0. 6	0. 6	0. 6	0. 4	0. 6	0. 6	0. 4	0. 6	0. 4	0. 6	0. 6	0. 4	0. 4	10. 6	0.504	0.1	0.198
41	Nationality and language of labours	0. 6	0. 6	0. 6	0. 4	0. 4	0. 6	0. 6	0. 4	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 2	0. 2	9.6	0.457	0.2	0.4375
42	Low skilled/produ ctivity level or unqualified	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	11.			
	labours Presence of	8	6	4	6	6	4	6	6	6	6	6	4	6	4	6	4	4	6	8	6	6	8	0.561	0.1	0.177
43	Unskilled Labor	0. 6	0. 8	0. 4	0. 8	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 8	0. 6	0. 4	10. 6	0.504	0.1	0.198
44	Change Order	0. 4	0. 4	0. 2	0. 4	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	8.8	0.419	0	0
45	Mistake and Discrepancie s in Contract	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	10.	0.405	0	â
46	Difficulties in financing the project by	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2	0.485	0	0
47	Major Dispute and	2	4	2	4	4	2	0	4	4	4	4	4	4	4	4	2	4	4	4	4	2	7.0	0.301	0	0
4/	Negotiations	2	4	4	4	4	4	6	4	4	0. 6	4	4	4	4	4	4	4	4	4	4	4	8.6	0.409	0.1	0.244
48	Overalll Organization Structure Linking all Parties to the Project	0.	0.	0. 4	0. 6	0. 6	0.	0. 8	0. 6	0. 6	0. 6	0. 6	0.	0. 4	0.	0. 4	0.	0.	0. 4	0. 6	0.	0. 4	10. 2	0.485	0	0
49	Lack of Communicati on Between the Parties	0. 6	0.	0. 6	0.	0.	0.	0.	0.	0.	0.	0.	0. 6	0. 6	0. 6	0. 6	0.	0. 6	0.	0.	0. 6	0.	12	0.571	0.1	0.175
50	Lack of Contractor Administrati ve Personnel	0. 6	0. 6	0. 6	0. 6	0. 8	0. 6	1	0. 6	0. 6	0.	0. 4	0. 6	0. 6	0. 6	0. 6	0. 2	0. 6	0.	0. 6	0. 6	0. 6	12. 2	0.580	0	0
51	Delay in mobilization	0. 2	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 4	0. 6	0. 4	0. 6	0. 4	0. 4	0. 4	0. 4	0. 4	0. 4	0. 6	0. 6	0. 6	0. 8	9.8	0.466	0.3	0.642
52	Severe Weather Condition	0. 4	0. 4	0. 4	0. 4	0.	0. 4	0.	0. 4	0.	0. 6	0.	0. 2	0.	0.	0.	0.	0.	0.	0.	0.	0.	8.4	0.4	0	0
53	Regulatory Changes and Building Code	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0. 6	0.	0.	0.	12.	0.6	0.1	0.166
54	Problems with Neighbors	0.	0. 4	0. 4	0. 4	0. 4	0.	0. 4	0.	0.	0.	0.	0. 4	0.	0.	0. 4	0.	0.	0.	0. 6	0.	0. 4	8.8	0.419	0	0
55	Unforeseen Ground Condition	0. 6	0. 4	0. 4	0. 4	0. 6	0. 6	0. 6	0. 4	0. 4	0. 4	0. 6	0. 2	0. 4	0.	0. 6	0. 6	0. 4	0. 4	0. 4	0. 4	0. 6	9.8	0.466	0	0
56	Legal Dispute Between Project	0. 6	0. 6	0. 6	0. 6	0. 8	0. 4	0. 8	0. 6	0. 6	0. 6	0. 8	0. 6	0. 6	0. 6	0. 6	0. 6	0. 6	0. 4	0. 6	0. 6	0. 6	12. 8	0.609	0	0



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	participants																									
57	Work	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	12.	0.000	0	0
	complexity	8	6	6	8	8	6	8	6	8	8	6	4	4	4	6	4	4	6	4	6	8	8	0.609	0	0
50	Economic	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	13.			
50	crisis	8	6	6	8	8	6	8	6	8	8	6	6	6	6	8	4	6	4	4	8	4	4	0.638	0.2	0.313
	Change in																									
50	government																									
59	regulations	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	13.			
	and laws	6	6	6	8	8	6	8	6	8	8	8	4	4	4	8	6	6	4	6	8	6	4	0.638	0	0

Table 4.1 Results

Table 4.2 Ranking of Delay Factors		
Factors	Index Score	Rank order
Technology changes & modification from client	0.676	1
Economic crisis	0.638	2
Change in government regulations and laws	0.638	2
Materials Price Fluctuations	0.638	2
Shortage of Labour Supply	0.609	3
Legal Dispute Between Project participants	0.609	3
Work complexity	0.609	3
Regulatory Changes and Building Code	0.6	4
Late procurement of materials	0.59	5
Lack of Contractor Administrative Personnel	0.58	6
Labour Productivity	0.58	6
Poor communication and coordination of labor	0.58	6
Administration problem during work	0.58	6
Lack of Communication Between the Parties	0.571	7
Personal conflicts among labours	0.561	8
Low skilled/productivity level or unqualified labours	0.561	8
Changes in materials types during construction	0.552	9
Delay in the approval of contractor submission by the engineer	0.542	10
Inadequate Contractor Experience	0.542	10
Delay in approving shop drawing and sample material by client	0.533	11
Construction planning errors & equipment failure	0.523	12
Lack of consultant experience in construction projects	0.523	12
Sudden increase in quantity needed	0.514	13
Routine of government authorities and approvals	0.514	13
Labour exodus /evacuated from the region	0.504	14
Presence of Unskilled Labor	0.504	14
Equipment Availability and Failure	0.495	15
Mistake in design documents	0.495	15
Mistakes and discrepancies in contract documents	0.495	15
Duration is not enough for constructing the project	0.495	15
Change orders by client during construction	0.495	15
Difficulties in financing the project by contractor	0.495	15



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Conflicts between joint-ownership	0.485	16
Inappropriate Overalll Organization Structure Linking all Parties to the		
Project	0.485	16
Mistake and Discrepancies in Contract Documents	0.485	16
Unrealistic imposed contract duration	0.476	17
Quality assurance/ control	0.476	17
delay of payment from client	0.476	17
Delay in mobilization	0.466	18
Slow decision- making by owners	0.466	18
Delay in performing inspection and testing	0.466	18
Unforeseen Ground Condition	0.466	18
Lake of interest in the project	0.466	18
Rework due to workers mistakes	0.457	19
Construction Methods	0.457	19
Preparation and approval of drawing	0.457	19
Nationality and language of labours	0.457	19
Delay in Materials Delivery	0.438	20
Shortage and Material	0.428	21
Delay in progress payments to contractors /consultant	0.419	22
Change Order	0.419	22
Problems with Neighbors	0.419	22
Quality of Material	0.409	23
Major Dispute and Negotiations	0.409	23
Severe Weather Condition	0.4	24
Lack of labour	0.4	24
Price level changes of material in market	0.371	25
Contract Management	0.371	25
Difficulties in financing the project by contractor	0.361	26





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#### V. CONCLUSION

The foremost delays corporations have been identified and ranked, which institution of contractor associated delays inside the pinnacle primary groups that make contributions to the reasons of delays. The pinnacle 5 maximum important elements causing delays are elements of put off in revising and approving design documents, delays in sub- contractor's work, negative communiqué and coordination, change orders through owner throughout production and inadequate contractors work. To limit delays in creation challenge, powerful strategic making plans, website online control and supervision and clean records and conversation channels are advocated. Demographic background of the respondents and previous research inside the similar scope justifies the reliability and validity of the design and the findings of this research, respectively. Inner consistency of the causes of undertaking delays become additionally examined and demonstrated thru chi –check information. Outcomes of the tests showed the reliability and validity of the research design and the findings.

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