

IDENTIFICATION OF FACTORS INFLUENCING THE COST OF RESIDENTIAL CONSTRUCTION PROJECT WORK IN SOUTH GUJARAT REGION USING S.I. METHOD

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ABSTRACT

This study determines the various factors effecting project cost in the south Gujarat region construction industry. It analyses the factors and their consequences in the building construction process. Designed questionnaires in English as well as in regional language (Gujarati) were distributed to construction professionals including; site supervisor, project engineer and contractors in four cities, seeking their opinions on the effect of construction cost. The total of 127 sets of questionnaires were distributed and 80 responses were received back. This collected data were used to carry out important factors those affect the cost of residential construction project work using the ranking method called significance index (S.I.) method.

Keyword: - Construction project, Project Cost, significance index, cost control

1. INTRODUCTION

It is the general dream of each Gujarat citizen is to have own his house. However, economic problems began to arise in Gujarat that have made this dream very difficult to achieve. These problems are complicated, so each specialist in the field of housing and construction holds a unique opinion on the main causes of the problems. The main obstacle that consumers face at present is the drastic increase in housing and construction prices in the major cities of Gujarat. The present research study focuses specifically on housing and construction of residential projects in Gujarat.

One of the main problems of the construction and housing industry may be credited to the effect of the country's main industries. "Prospects of rising prices of building materials are in line with the rise of petroleum products." As the petroleum price rises it creates new problems, and these problems, rises the construction and housing prices straight more. Therefore, the correlation between high petroleum prices and problems in the housing and construction industry is positive. The crisis wants to be fixed soon, as it is making itself more difficult as time progresses. For example, the persistent immigration from small cities to the mega cities with the high population growth will simply continue to increase demand. Now that the problem is complex, finding the factors cannot be easy or quick. Taking more time to apply the right solution will allow the problem to get even more difficult, so accurate research is preferable to the slower process of blind trial and error in this situation.

2. OBJECTIVES OF THE STUDY

The aim of this research is to analyze the local factors affecting the cost of construction projects in major cities of Gujarat. The aim of this research can be broken down into the following objectives.

1. To identify the main factors affecting cost of residential construction project works in Gujarat area.
2. To evaluate the effective factors to reduce the cost of residential construction project works.
3. To analysis data by *significance index (S.I.)* method.

3. RESEARCH METHODOLOGY

The data collected to determine the most significant factors on cost of construction of the residential project was done through a survey by explorative questionnaire to the respondents involved in the daily activities of construction firms of Surat, Navsari, Bardoli and Valsad city of south Gujarat. The questionnaire was designed so that respondents can give the rank to their answers based on the Likert scale. The analysis of these data was done by a method named significance index (S.I.) ranking methods using Microsoft Excel.

4. DATA ANALYSIS BY SIGNIFICANCE INDEX (S.I.) METHOD

The data collected was manually analyzed by the S.I. method with the help of which a decimal figure for each factor is obtained which is known as its significance index. This index is used to rank the factors.

Total 54 factors were analyzed using S.I. Method and ranked as shown in Table 1.

TABLE NO 1: RANKING OF FACTORS AFFECTING COST OF CONSTRUCTION

No.	The factors affecting cost of construction	S.I	RANK
(A) Management			
1	Improper Planning	65	1
2	Inappropriate Cost Estimation	58	7
3	Inadequate Safety Measures	63	3
4	Unclear Project Scope	57.75	8
5	Cost Overruns	59.25	6
6	Communication Gapes	60.25	4
7	Experience And Skills of Project Manager	64.75	2
8	Crisis Management	59.5	5
(B) Financial			
9	Investment	60	3
10	Payment to Parties	62	1

11	Profit Margins,	58	6
12	Interests	55.75	7
13	Market Conditions	58.75	5
14	Land Question Cost	59.75	4
15	Methods of Payments	61.75	2
(C) Time			
16	Delay in Progress Work	65.75	1
17	Frequent Change in Order	56.25	6
18	Delay in Decision Making	64.5	2
19	Past Experience of Engineer/Supervisor	64	3
20	Estimated Project Duration	59.25	4
21	Delay Due to Disputes	58.25	5
(D) Governmental and Political			
22	Bribe	61	2
23	Government Policy of Housing	59.25	3
24	Approval Procedures	58.25	4
25	Legal Documentation	61.75	1
(E) Material and Equipment			
26	Late Material Delivery	53.5	8
27	Equipment Mechanization	60.25	4
28	Waste of Materials	65.25	1
29	Thefts on Site	62.5	3
30	Price Escalation	63.75	2
31	Transportation	58.75	5
32	Functional Obsolescence of Equipment	57	6
33	Procurement Cost of Material, Labour and Equipment	54.75	7
(F) Labour			

34	Unskilled Personnel/Labour	60.75	2
35	Absenteeism/Strikes/Turnover Rate of Labour	56.25	4
36	Availability of Labour	59.25	3
37	Improper Selection of Labour	64.25	1
(G) Technological and Productivity			
38	Design Problems	60.5	4
39	Risk Factors	61.25	2
40	Project Complexity	61	3
41	Construction Method	60	5
42	Degree of Repetition of Units	63.5	1
(H) Quality Factors			
43	Rework Cost	60.25	4
44	Durability	63	1
45	Constructability	58.75	5
46	Workman Ship	57.5	7
47	Unclear Technical Specification	60.75	3
48	Delay in Inspection & Test	62.75	2
49	Expertise in Constructions	55.25	8
50	Number of Amenities	58.75	5
(I) Environmental Factors			
51	Area of Construction Work	54.25	4
52	Weather Conditions	56.5	2
53	Natural Calamities	55.25	3
54	Social Environment of Region	58.25	1

5. CONCLUSIONS

The Construction industry is considered as an important sector in the world as it develops and achieve the goals of the society. A questionnaire based survey was used to judge the views of Site Supervisor, Project Engineers and Contractors towards factors affecting cost of residential construction projects of construction firms in the south Gujarat region. 127 questionnaires were distributed as follows: 44 to Site Supervisor, 35 to Project Engineers and 48 to Contractors, 80 questionnaires (88.88%) were returned. The respondents were asked to indicate the level of importance of each of the 54 factors as very high, high, mid, little, very little degree affect. Results indicated that the most important factor affecting cost of construction where delay in progress work, waste of materials, improper

planning, experience and skills of project manager, delay in decision making, improper selection of labour, past experience of engineer/supervisor, price escalation, degree of repetition of units, durability etc.

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