

STUDY ON FACTORS INFLUENCING IN SAFETY PERFORMANCE IN CONSTRUCTION PROJECTS

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ABSTRACT

Accidents are not only results of pain and suffering, these are the losses of productivity, quality, time, and negatively affect the environment and cost of construction. Unfortunately, safety, health and the environment are not considered in construction site and managed very rarely. This research aims to find out the factors influencing in safety performance in construction projects. The preliminary data for this study was collected through a literature review and the preparation of questionnaire surveys targeted at some contractors, construction project managers around in India. It is hoped that the findings of the paper will improve the safety factors of the constructions and help the stakeholders to act on critical safety performance factor and try to improve performance of their projects. The questionnaires are prepared based on factors and performance of safety in construction sites. 23 factors are chosen and grouped into 5 groups according to their nature, characteristics, namely, Site related issues, Labour related issues, Store related issues, Management related issues and Miscellaneous issues. The questionnaire was distributed to Architect, Project manager and Site Engineers.

Keywords: Safety management, safety issues, safety factors, questionnaires survey

1. INTRODUCTION

Management and planning is one of the ways to avoid the issues and problems. The accidents are unplanned incidents; an effective safety management can help to avoid job accidents and injuries. Safety management should follow, and it's applicable for all types of job. This safety management is suitable, from the estimating phase of the project until the last worker has left the premise at the completion of the project. All parties from construction project must be included in some way in the safety program.

The construction industry is one of the most physically demanding and dangerous industry sector in India. Every day Construction workers are facing risks and different health hazards at each new project. This realization has led to many efforts in identifying the cause of accidents and their prevention.

Most of large firms they will show safety policy only on paper, but employees in general they are not aware of safety. A number of major constructions exhibit a concern for safety management and have established various safety methods. They also provide the safety tutorial classes for workers and maintain safety personnel on the jobsite. Some industries won't conduct the safety orientation for new staff or workers. Employees are required to learn safety and their importance from their own mistakes and experience. In addition, lack of safety equipments, medical facilities, shanty housing, and substandard sanitation tend will cause the workers health problems. So that the execution of safety management is most important criteria in all construction sites.

1.2 MAJOR CAUSES OF ACCIDENTS

- While excavating in deep trenches no proper shoring or branching
- Accidents due to cave-ins often occur,
- The unavailability of protective gloves and boots are common.
- From heights due to weak scaffolding and the unavailability of safety belts.

- Improper housekeeping.
- Lack of experience and knowledge of the job
- Poor equipment maintenance

2. FACTORS AFFECTING LABOUR PRODUCTIVITY

Table 1: Factors Affecting Labour Productivity

1	Lack of skill
2	Lack of training
3	Inappropriate Construction methods
4	Shortage of material
5	Labour strikes
6	Poor quality materials
7	Lack of material specifications
8	Tools and equipment shortages
9	Inspection delay
10	Poor site management
11	Poor communication
12	Lack of experience
13	Labour absenteeism
14	Complicated design
15	Frequent design changes
16	Misunderstanding between labour and supervisor
17	Working over time
18	Payment delay
19	Lack of Motivation
20	Rework
21	Use of alcohol and drugs
22	Morale and attitude
23	Non provision of proper transportation
24	improper scheduling
25	Insufficient lighting& ventilation

3. SAMPLE QUESTIONNAIRE

Table 2: General Introduction about Company

Name of the engineer	
Designation	
Field experience	
Name of the company with address	
Project name	

Project duration	
Project cost	
Location of project	
Contact number	
Mail id	
Signature	Seal of the company

3. DATA COLLECTION

We give the questionnaire sample to Chennai, Chidambaram, and Dindugal company. Then we collect the copy and analysis the given answer to that and identify the major problem should become about what categories of problems. Given the one questionnaire sample below with all details.

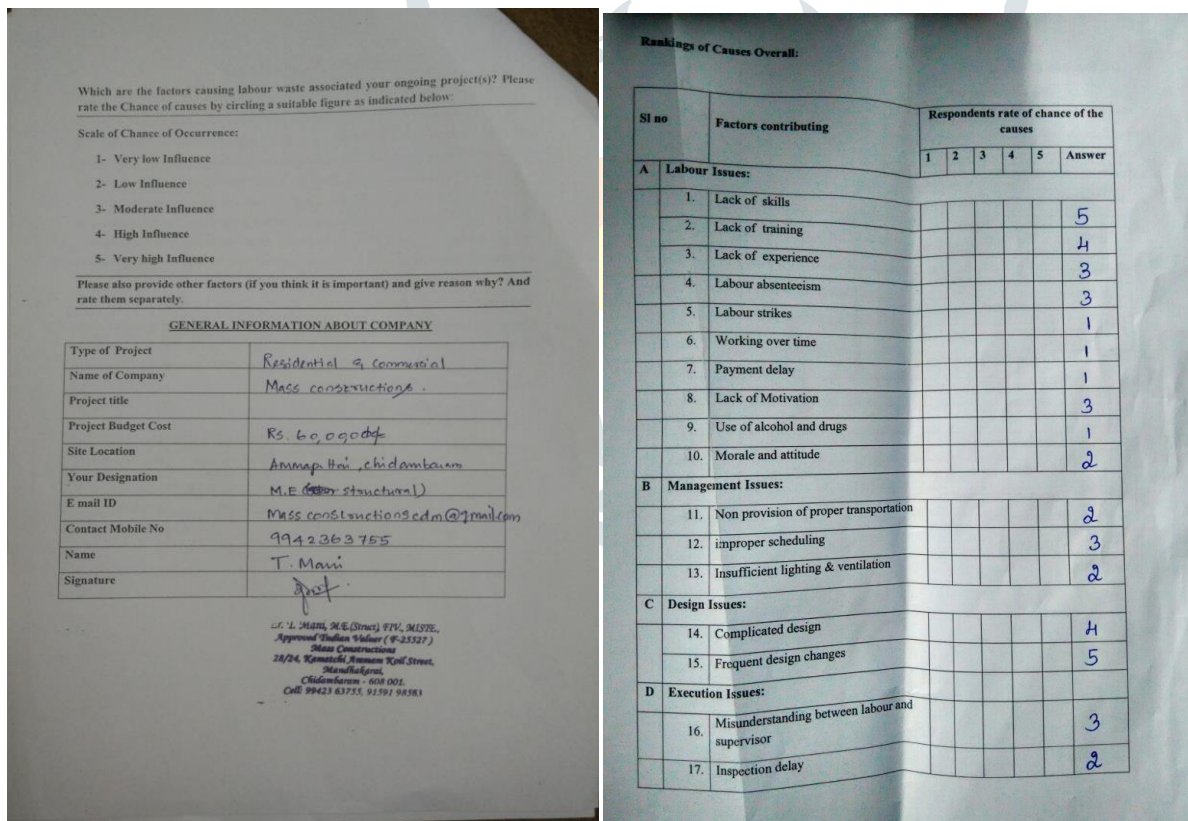


Figure 1: Collected sample

D Execution Issues:		1	2	3	4	5	Answer
18.	Poor site management						4
19.	Poor communication						4
20.	Rework						3
21.	Inappropriate Construction methods						4
E Material:							
22.	Shortage of material						5
23.	Poor quality materials						3
24.	Lack of material specifications						4
25.	Procurement or delivery problems						3
F Equipment:							
26.	Tools and equipment shortages						3
27.	In efficiency of equipment						4
F Others:							
28.	Weather changes						2
29.	Accidents						1
30.	Government regulations						2

Figure 2: Collected Questionnaires sample

4. GRAPHICAL REPRESENTATION FOR EACH ISSUES

4.1 Labour Issues

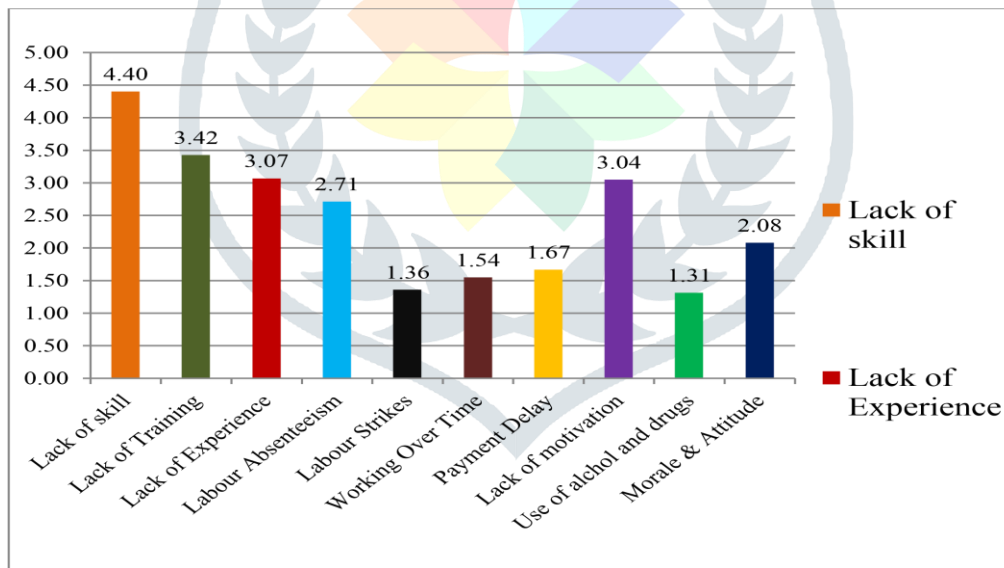


Figure 3: Labour Issues

Rank 1	Lack of skill
Rank 2	Labour of training

4.2 Management Issues

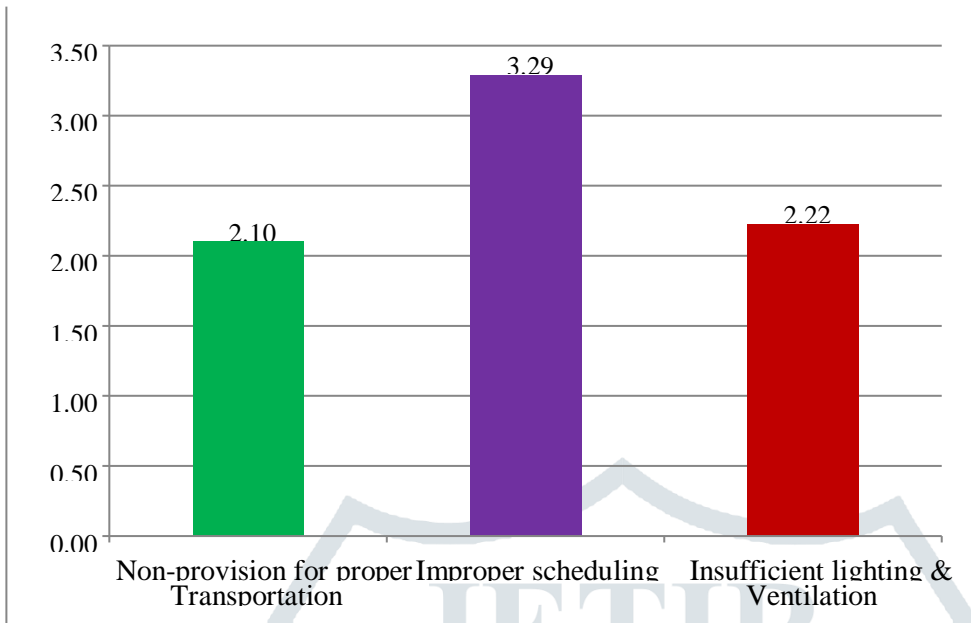


Figure 4: Management Issues

Rank 1	Improper scheduling
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4.3 Design Issues

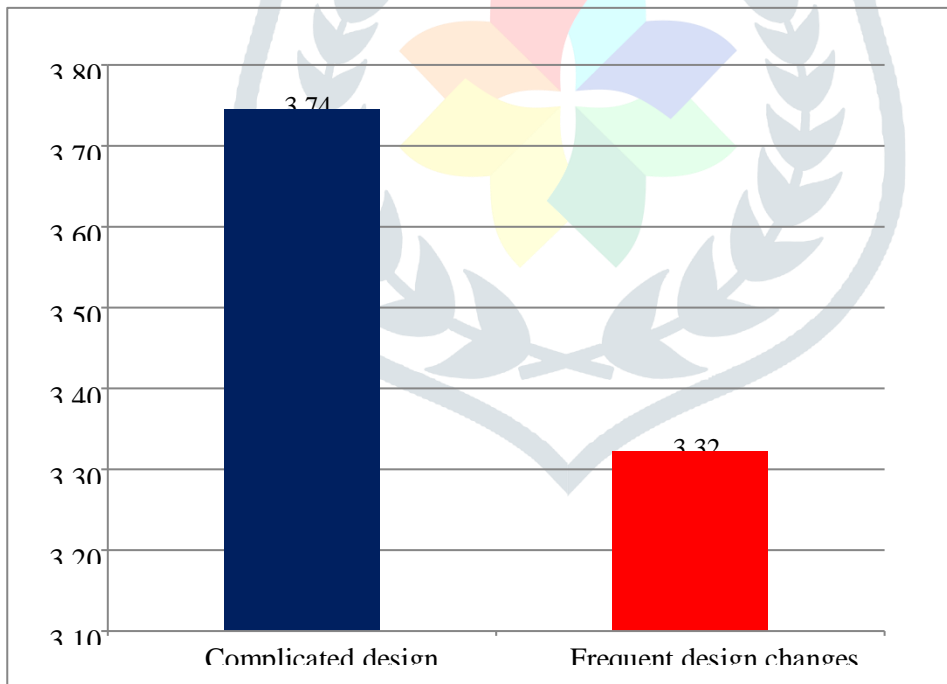


Figure 5: Design Issues

4.4 Execution Issues

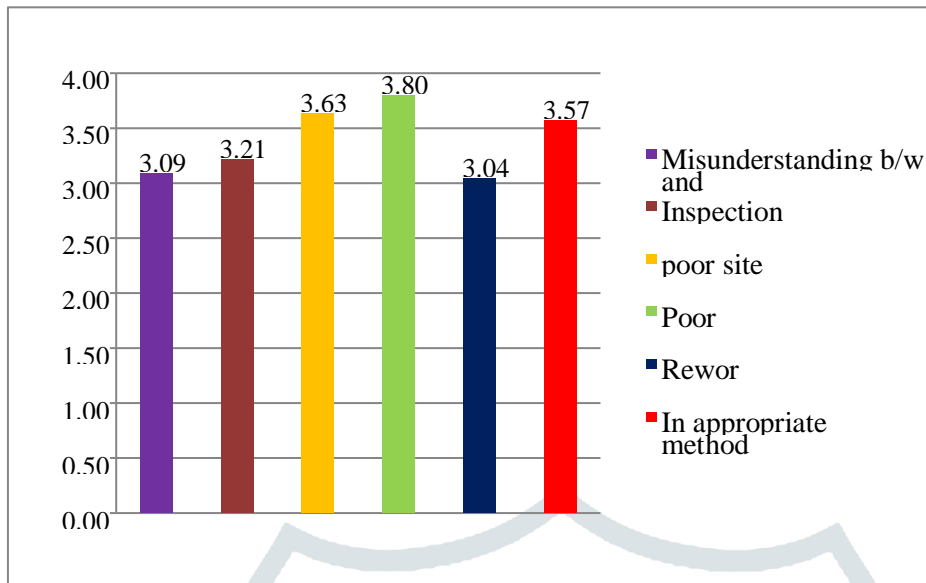


Figure 6: Execution Issues

Rank 1	Poor communication
Rank 2	Poor site management

4.5 Material Issues

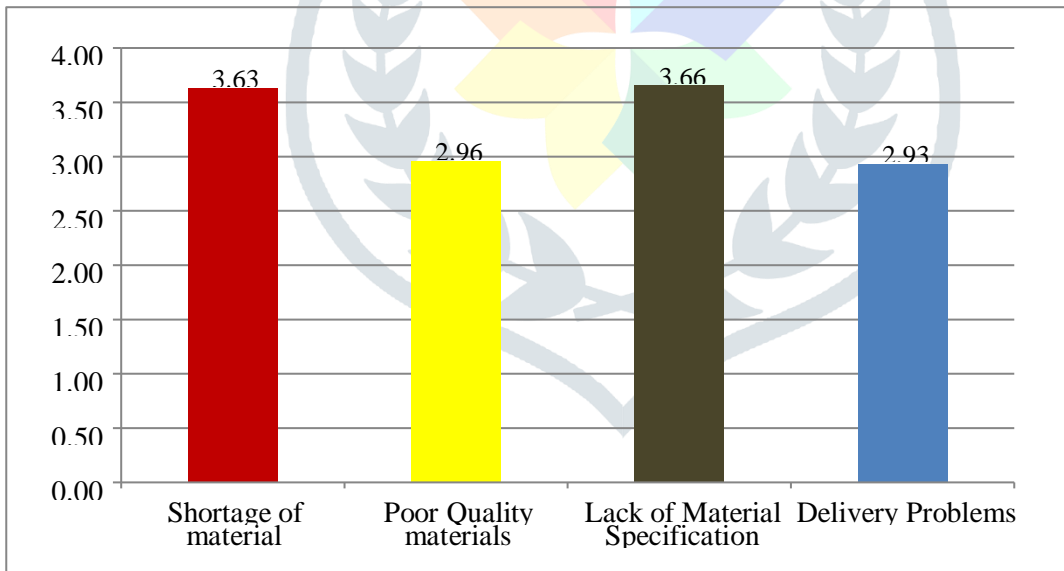


Figure 7: Material Issues

Rank 1	Lack of material specification
Rank 2	Shortage of material

4.6 Equipment Issues

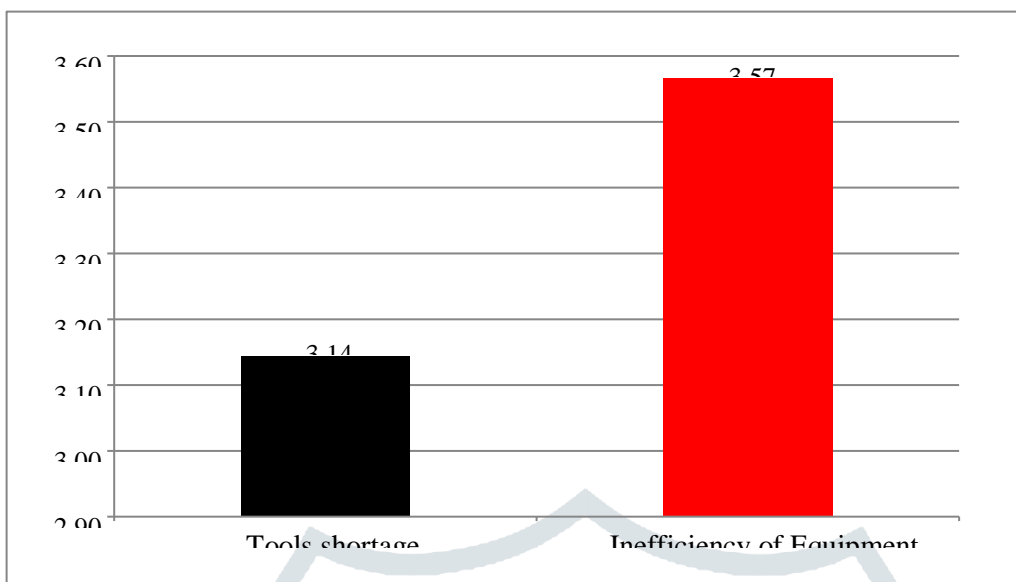


Figure 8: Equipment Issues

4.7 Other Issues

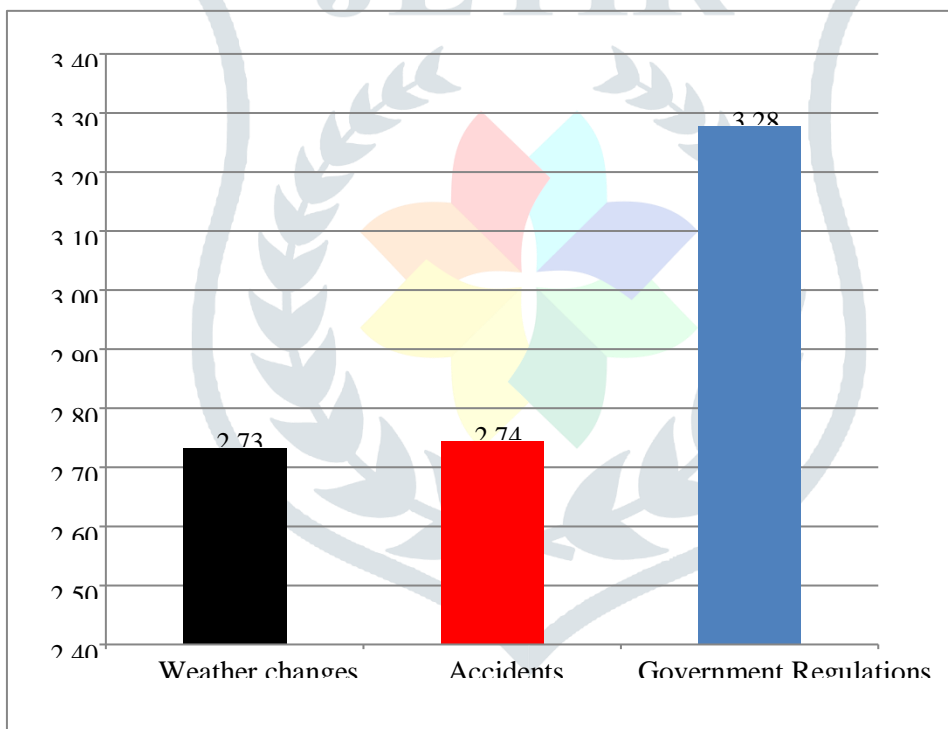


Figure 9: Other Issues

4.8 Overall issues

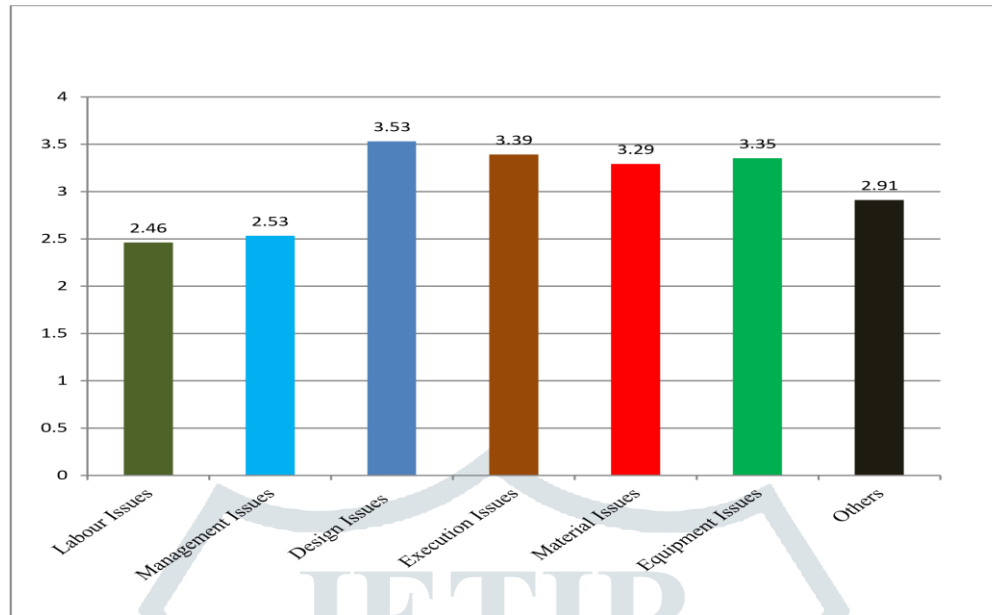


Figure 10: Overall issues

Rank 1	Design Issues
Rank 2	Execution Issues
Rank 3	Equipment Issues

5. CONCLUSION

- This project is intended to identify the causes of probable factors affecting labour productivity in building construction.
- This study investigates all possible factors through a structured questionnaire.
- The survey results are subjected to analysis and the ranking of factors is done by using the mean value.
- 30 factors considered for the study were categorized in seven different groups.
- Total of 150 questionnaires were distributed, and 90 questionnaires were returned.
- The groups of factors which are highly effective are design issues, execution issues, equipment issues.
- Practically it is difficult task to all to improve labour productivity upto 100%. But if you have properly control on above factors, productivity can be improved up to large extent.

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