

OPTIMIZING PLANNING AND MANAGEMENT OF CONSTRUCTION MATERIALS

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ABSTRACT

The Construction industry of India is a significant indicator of the development as it creates investment opportunities. But the opportunities are not effective with improper management. Construction materials play a major role in any project. About 60-70% of cost of the total cost is consumed by materials. Therefore effective management and planning of materials is required to increase the productivity and cost efficiency of a project and also helpful in successful completion of project within time. This research is carried out to found Which Material management task is most important and their priority, to find out the onsite problems which are affecting the material management practice, wastages during the execution period and how to minimize them. The main tools for the collection of data included questionnaires, and site visit. Simple Percentage method is used to find out the problems and important task associated with the material management on site and used them in analyze the results from the questionnaire. Secondary sources of data were obtained from relevant literature that covered all the necessary information related to the construction materials management and research paper and suggestions will be given for managing the materials better in future.

Keywords: Material, cost, construction, cost, productivity, wastages, planning, estimation etc.

1. INTRODUCTION

Material management is nothing but the proper utilization of material so as to complete project within time. The one of the main reason for carrying material management is for the availability of material at right time ,right quality, right quantity, and is of best quality at best cost. . So, the materials management is an important criterion in the project management. Early purchase of material will results in damage of material while taking more time in purchasing will results in the shortage of materials. The early purchase may hold up the capital costs. Management of material is important part of planning and monitoring . Material management will not only help on site it will also helpful in understanding required Material for future project also.

1.1 Problem Statement

Material management is one of the major problem that causing construction industry. In construction project there is always a lack of interest about material management. It is found that most construction site focus on completion of work neglecting material management. This negligence causes project on

various aspects such as wastage and shortage of materials, increase in cost and time of project. It is therefore very important to focus on material management as it can definitely beneficial for project.

1.2 Need for Material management system[12]

Time and cost plays an major role in completion of project within given time. The main reason is that there is no Communication between the employee, heads and contractor which cause the material management on all aspects. This study proposes the design of and information system to address the following issues:

1. To minimize cost and time.
2. Improved communication within various department on site.
3. Highly systemized way of construction practice.
4. Improved material shortage problem.

1.3 Objective of the study

1. To find out the problems associate with material management practice on site.
2. To find the problems in estimation, planning, Storage & to suggest remedies regarding the material.
3. To minimize the Wastage of material through controlling and monitoring of materials.
4. To investigate requirements necessary for effective use of the system, such as Skills and knowledge requirements.

2. METHODOLOGY

In this method both quantitative as well as qualitative approach are used. For analyzing quantitative data M.S.Excel software is used.

Research objective

A first objective of the research was found out for carrying out the further research. Based on the objectives appropriate methodology and questionnaire was developed to get results.

Literature review

Many journals and research paper were studied to select the correct methodology, scale of measurement and data analysis method.

Questionnaire design

The designed questionnaire has been pre-tested and its validity and reliability have been checked with statistic tool and discussed with experts in this area. As part of the survey Engineers, supervisors, contractors From the project Rohan Abhilasha, Rohan Kritika, rohan Madhuban, Rohan Ispita And Rohan Ananta were given the questionnaire in person . After completing the format the questionnaires were received back in person. There are 55 formats were received back and out of 70 only 50 formats were completed in all respects for analysis.

Name :-											Material Estimation	Material Planning	Material Purchasing	Material Delivery	Material storage	Site Management
Dsignation:-																
Project name:-											Material Estimation	Material Planning	Material Purchasing	Material Delivery	Material storage	Site Management
signature																
Sr. no.	Description	yes	no	scale					Material Estimation	Material Planning	Material Purchasing	Material Delivery	Material storage	Site Management		
				1	2	3	4	5								
1	in which process you can identify the major problems in system?															
2	which dept is responsible for materials handling plan and procedures?															
3	How adequate are procedures for storage material on site?															
4	Do you carry out material management on your site?															
5	Are you satisfied with current material management process?															
6	Are there any benefits of current material management process?															
7	Is there schedule of procurement of materials are prepared?															
8	Are material management details have been discussed on site within departments?															
9	is the material is available at required time & Place , if not who is responsible?															

3. QUESTIONNAIRE RESULTS

Table no. 1 major factors affecting material management.

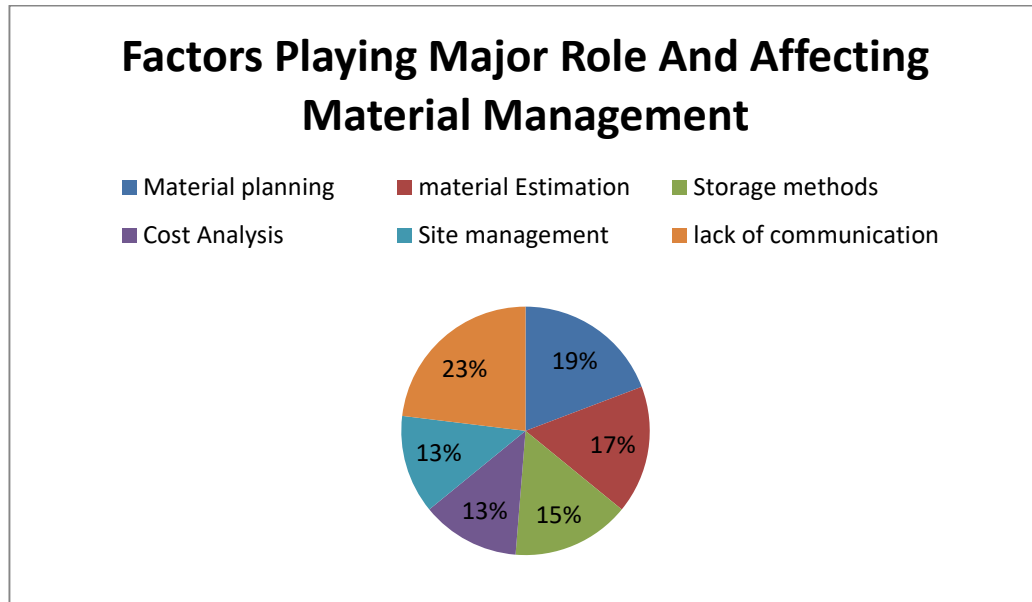


Figure no.2 Diagrammatic Representation of material management tasks

<i>Sr. no.</i>	<i>Description</i>	<i>Percentage</i>
1	Material planning	30
2	material Estimation	26
3	Storage methods	24
4	Cost Analysis	20
5	Site management	20
6	lack of communication	36

Questionnaires Survey Result

- 1) About 30% people think Planning is the most important term in material management which is not done properly on this project.
- 2) About 26 % people think Material estimation plays major role in material management as it can prevent wastage by calculating accurate quantity of materials.
- 3) About 24% people think storage techniques or methods are not followed properly, which can delay the construction procedure.
- 4) About 20 % people think ABC Analysis must carried out for preventing cost overruns of project.

- 5) About 20 % people think Site Management is Responsible for Not Applying materials management on site.
- 6) About 36% people think lack of communication can affect the material management on site.
- 7) About 70 % people think they do not perform any activity to prevent and reuse wastage.
- 8) 66 % of people think lack of interest of employee causing material management practice on site.
- 9) 80% people think material estimation, material planning and material storage are the most important task in material management.

4. CONCLUSION, SUGGESTION AND RECCOMENDATION

- From this research we can conclude that by effective site management and positive participation of employee in material management practice can helps project completion within time with quality, minimum loss.
 - With proper estimation, planning & storage we can save lots of time and money.
 - By proper scheduling of material and using waste material for casting work we can minimize wastage.
 - Having skilled and clever employee who understands the importance of material management practice will helps project in all aspects.
 - By performing material management on site will helps organization as well as employee as it gives you a major knowledge of performing quality work within time with minimum cost.
 - For changing minds of employee about material management site management should arrange some training and learning program on site.
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- **Recommendations And Suggestions**
 - Site management should focus on the effective planning of material which will be helpful in reducing waste
 - Also material estimation must carried out so as to order the required quantity of material , which will help in shortage and wastage of materials
 - Storage methods should applyon all the materials so as to maintain the effective use of materials.
 - The engineers, supervisors, contractor, and site management must maintain a proper communication between them; this will helps in effective use of all materials and will definitely reduced wastage and shortage.
 - The site management should arrange some training lessons on effective material management and how it can be beneficial for the project.
 - Site management should use the waste material in completing another activity like making cement pavement from waste concrete etc.
 - The management should always encourage the employee about the effective use of technology that can help in all aspect of project.
 - Awareness and accountability should be created within The organization

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