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OVERVIEW OF CRITICAL CHAIN MANAGEMENT IN CONSTRUCTION PROJECTS

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ABSTRACT:

Quality of any construction project is judged by the time taken for completion, the cost effectiveness and the design considerations for the effective space utilization. If any of these factors are not considered or affected, it is going to affect the total project. Delays in the construction projects are common due to certain reasons and the failures of the management. Lower time for completion of the project may results in more profit to the industry. Planning of every project despite of the size of the project is very critical aspect for the timely completion and cost effectiveness of the project. The researchers in the construction management area have proposed the concept of the chain management for the construction projects and it is found suitable. It is proven in the research over last decade that the chain management has saved the cost of project and reduces the time required for completion by optimum use of the available resources. Authors have presented the overview of the critical chain management for the construction projects.

KEYWORDS: Construction management, critical chain management, project management, construction projects, etc.

INTRODUCTION:

The time in case of the construction projects plays an important role when the project is judged over the cost effectiveness. The government of India has implemented the act called RERA. The focus of this bill is to implement the guidelines for the construction industry to complete each project with consideration of the buyer's rights. The construction industry may be charged the penalty upon failure in delivery of the project in stipulated time.

Chain management for supply has the several advantages. In today's era of fast internet services, it is possible to manage the supply by considering the availability of the material at different places or manufacturing units. The most important aspect of this system is availability of real time information of the material available. [1]

The critical findings of the researchers are turning to be the guide for the construction managers over last two decades. The comparison of the different methods for construction management has also been studied and presented by the researchers. It has become really easy now, to choose the specific method to be implemented with particular objective of the project. [2]

It is observed that around 50% projects were completed in time in last three decades. All the factors affecting the project are to be critically considered and a complete evaluation of the project plan must be done for effective delivery of the projects. Most of the times the assumptions made for decision making may not be functioning as assumed. It results in delay and increase in cost of the project. [3]

Construction supply chain may become very complicated if not managed properly. Required material, time, money, manpower are the aspects to be managed. All the resources are required in different proportion at different times during the project. [4]

The project is mainly dependent on the governance in point of view of completion of task in time. Providing the contract of the project to external contractor can be one of the ways for timely construction of the projects. [5-6]

CRITICAL CHAIN MANAGEMENT:

Several proposals were presented by the researchers over last decade for effective completion of the construction projects. One of the conventional methods is CPM (Critical Path Management). The work schedule in this method is dependent on the guess work. It may not be so effective method as it may results in failure to the project completion in time. Another important and operative scheme is critical chain management. The important aspect of this method is theory of constraints (TOC). The idea is very simple to understand that, every system has some limitations, and unless it is over the system cannot improve. TOC mainly works on following steps for the construction projects:

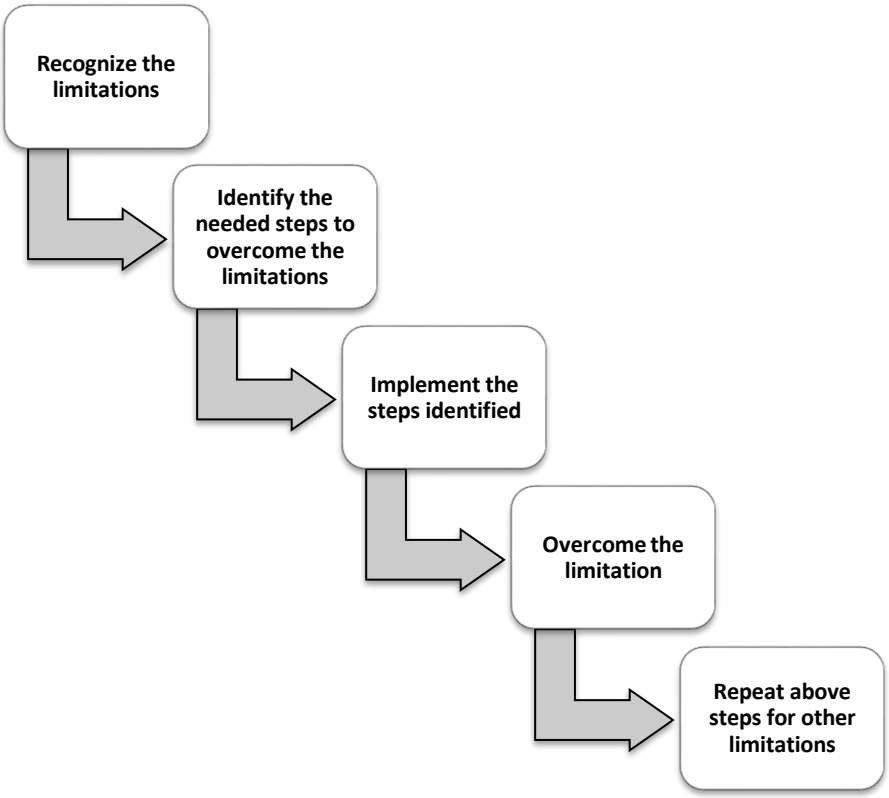

Fig.1: Steps for implementation of TOC in construction projects

In accomplishment of the above step the buffers are playing a vital role. Buffers are the precautionary steps taken to complete the project in time. It protects against delays in completion of the task. This can be additional resources, material, human resources additionally made available to speed up the project. The buffers are of following types:

- **Project-** Complete project is uplifted in terms of speed for completion with this buffer.
- **Feeder-** Some of the critical activities are completed with this buffer
- **Resource-** Any change in the demand of the resources can be overcame with it.

GENERALIZED STEPS IN CRITICAL CHAIN MANAGEMENT OF PROJECT:

During the planning stage of the project some of the critical or aggressive activities are to be identified from previous experience. These are the activities due to which there are chances of delay in the project. In the plan, the time given to such activities must be as long as possible. The manager of the project must take an overview of the activities and tasks completed periodically. When a task completed is around 50%, decision regarding identification of the buffer must be taken.

Figure 2 shown below representing the steps for the critical management. It needs to add either resource, or the anything required for completion of the tasks in time. The overview of the progress must be taken at regular intervals and the decision must be made for faster delivery of the work.

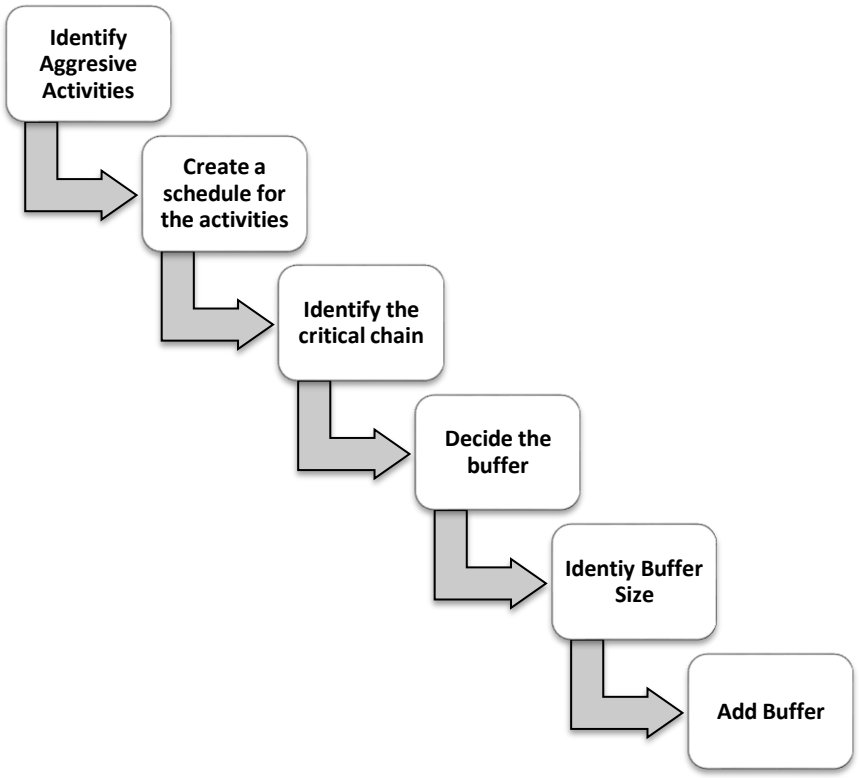

Fig.2: Steps for critical chain management

CONCLUSION:

Every system has some limitations; unless those limitations are overcome there is very low scope for improving the performance of the system. The approach to identify and overcome the limitations is called theory of constraint. This theory is implemented in the construction projects since last decade to manage the projects supply chain. The ultimate aim of this method is to help in the proper planning of the construction project. The chain management reduces the time required for the completion of the project and provided optimum utilization of the resources.

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