PRODUCTIVITY IMPROVEMENT IN CONSTRUCTION IN MS PROJECT

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Abstract— The productivity level of construction industry is mostly depending upon three factors they are labour characteristics, management systems and external issues. Different researchers have determined different factors that influence construction productivity. Understanding the level of productivity, it is important to develop innovative practices to improve construction productivity. This paper includes systematic literature reviews on productivity in construction industry the paper gives an review on different method which are used for measurement of construction productivity, factors affecting and theories on improvement of construction productivity such as labour factor, management factors and external factors, the paper further reviews on the different innovations which are made for improvement in construction productivity. On reviews it is noted that there are lot of different methods and strategies for improvement of construction productivity but they differs from site conditions and the factors which influence construction productivity.

Keywords— MS OFFICE ,PRIMAVERA

I. INTRODUCTION

General: Construction industry is world's most largest and challenging industry. Human resource has a strategic role in increasing productivity in construction industry. With the effective and optimum use of human resources can help in productivity growth. The construction projects are mostly labour based with basic use of hand tools and equipment's in which labour cost consists of about 30% to 50% of total project cost.Indian construction industry is one of fastest growing sector globally. The construction sector gives second largest employment after agriculture. India shares about 8% of total GDP and also provides employment to around 35 million peoples directly or indirectly. In construction industry one of the biggest problems faced is of unskilled labour which implies in productivity loss and impacts on cost overrun and schedule daily.

FIG 1.1 CONSTRUCTION SITE.

Labour productivity is one of important factor which affects physical progress of construction project. To perform effective job, construction labour should be familiar with materials, tools and machineries that they use. Many researchers have shown that poor construction management practices leads to poor performance, wastage of efforts in different phases of construction projects.
Researchers tried to overcome some of challenges by adding their efforts in construction project, however many problems are yet to be solved in terms of construction productivity. Identifying and analyzing the critical factor that influence construction productivity will lead to develop most effective method and strategies to improve the construction productivity in upcoming time.

II. LITERATURE REVIEW

The study ascertained that the main drawbacks of past productivity studies are the strong empirical inclination of methodologies adopted and the overwhelming positivist approach to examining productivity issues. The absence of follow-up studies to investigate the validity of productivity measurement techniques and the models and to test the claims made in productivity improvement studies, is a striking feature. Another impressive finding is the lack of scholarly attention to incorporate blue-collar worker perspective, employee involvement, and social dimension into productivity research.
Arditi and Mochtar (2000): Several researchers studied the factors affecting construction productivity in order to find the potentials for productivity improvement. Indonesian indicated that certain functions including procurement practices, cost control, scheduling and management integration need much improvement. The functions that were identified as needing more improvement were prefabrication, new materials, value engineering, specifications, labour availability, labour training, and quality control, whereas those that were identified as needing less improvement than in the previous surveys were field inspection and labour contract agreements.

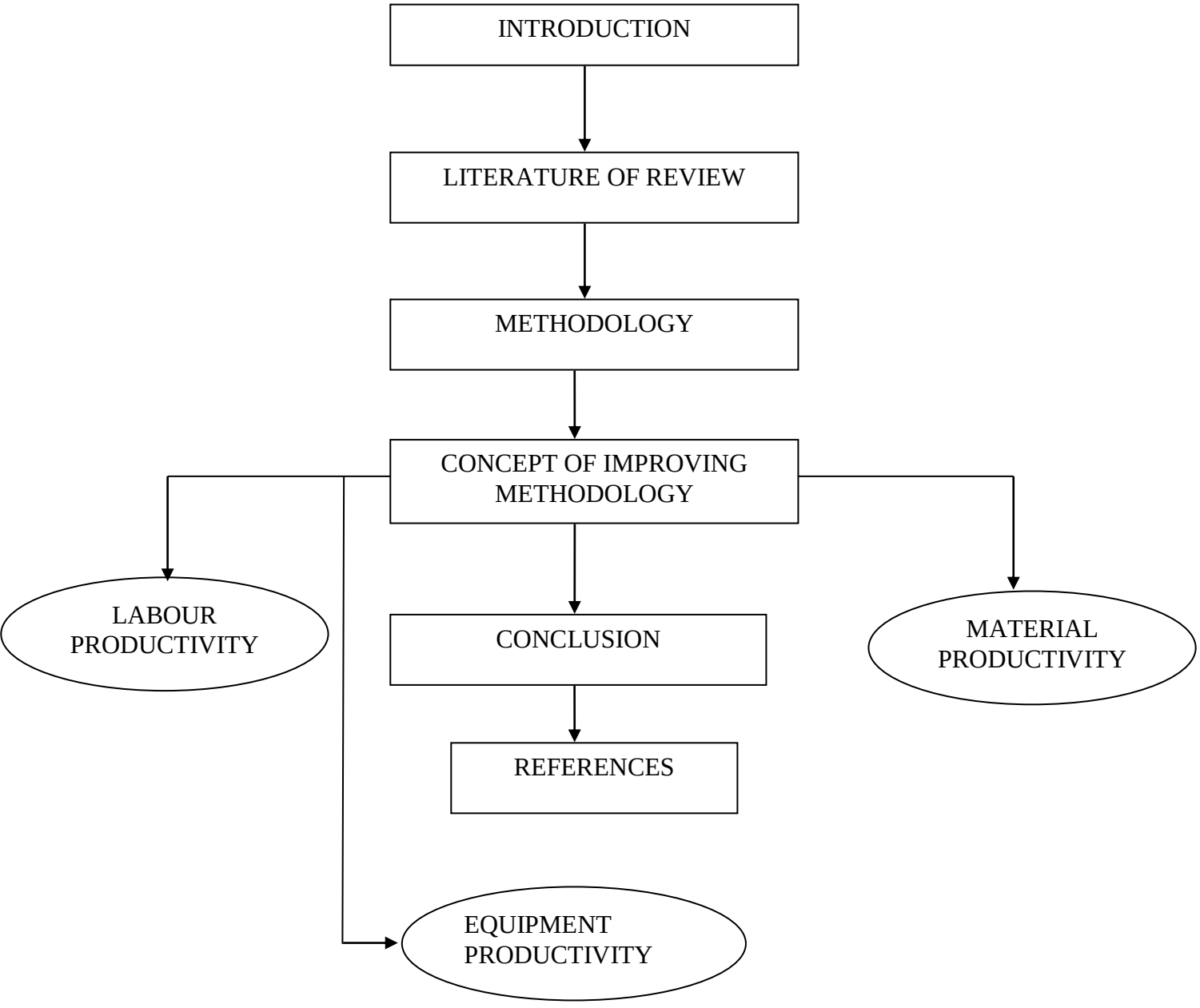
Thomas et al (2003): stated that new management thinking, like lean production, has suggested that better labor performance can be achieved by improving the reliability of flows. Lean thinking portrays reliable flows as the timely availability of resources, materials, information, and equipment. Site management fully accepts their responsibility for setting out the key workplace conditions for improved productivity and for maintaining an uninterrupted flow of work. Hence, the quality and authority of site management, the quality of their construction planning and their ability to administer the plan were seen as important determinants of productivity and site management seen as a key profession within the industry.
Rojas and Aramvareekul (2003): Improving productivity is a management issue, and the introduction of new techniques or technologies may be a necessary but not a sufficient condition. In order to improve productivity in construction it should be necessary to improve methods, improve training programs, enhance worker motivation, improve strategic management and improve procurement management.

In Haskell's view (2004): The potential for further productivity enhancements falls into five categories: information technology, project delivery, automation and prefabrication, workforce development, and materials. Construction method is a significant factor which has an impact on construction productivity.

Flanagan et al (2005): Construction productivity improvement is a key issue for businesses and nations to increase profitability, reduce costs, create and sustain competitive advantage. To remain world-class players in a highly competitive global market, construction decision makers must promote individual.
Mojahed and Aghazadeh (2007): Mentioned that improvement in construction productivity is not possible without identifying factors that influence productivity. Previous studies regarding productivity indicated that a broad range of factors affect productivity. These factors may be divided into industry-level,

company-level, and project level. Some of the productivity factors at industry-level include governmental interference, regulation burdens, local unions, and politics. Some of the factors that are at project level are labor-related and include motivation, experience, skill, and training. Some of the factors that are at company level are management-related and include planning and direction of project.

III. METHODOLOGY



IV.CONCEPT OF IMPROVING PRODUCTIVITY

4.1 THREE MAJOR TYPES TO IMPROVE PRODUCTIVITY:

1. Labour productivity
2. Material productivity
3. Equipment productivity

4.1.1 LABOUR PRODUCTIVITY:

Productivity in construction is often broadly defined as output per labor hour. Since labor constitutes a large part of the construction cost and the quantity of labor hours in performing a task in construction is more susceptible to the influence of management than are materials or capital, this productivity measure is often referred to as labor productivity

FIG 4.1: LABOUR PRODUCTIVITY

- Quality of Work - caliber of work produced or accomplished.
- Quantity of Work - volume of acceptable work
- Job Knowledge - demonstrated knowledge of requirements, methods, techniques and skills involved in doing the job and in applying these to increase productivity.
- Related Work Knowledge - knowledge of effects of work upon other areas and knowledge of related areas which have influence on assigned work.
- Judgment - soundness of conclusions, decisions and actions.
- Initiative - ability to take effective action without being told.
- Resource Utilization - ability to delineate project needs and locate, plan and effectively use all resources available.
- Dependability - reliability in assuming and carrying out commitments and obligations.
- Analytical Ability - effectiveness in thinking through a problem and reaching sound conclusions.

4.1.2 MATERIAL PRODUCTIVITY:

Materials Productivity management is an important element in project planning and control. Materials represent a major expense in construction,
minimizing procurement or purchase costs presents important opportunities for reducing costs. Poor materials management can also result in large and avoidable costs during construction.

4.1.3 EQUIPMENT PRODUCTIVITY:

Productivity in construction is often broadly defined as output per labour/equipment hour. Since labour/equipment constitutes a large part of construction cost and the quantity of Labour/equipment hours

in performing tasks in construction is more susceptible to the influence of management than are materials or capital, this productivity measure is often referred to as 'labour/equipment productivity'

- Keep track of productive, standby and nonproductive time.
- Consider the hourly cost of owning or renting equipment.
- Monitor variable vs. fixes costs.
- Manage equipment maintenance and repair.
- Schedule equipment efficiently.
- Select the right equipment for the job.

TYPES OF EQUIPMENTS USED IN CONSTRUCTION:

1. Surveying equipments.
2. Earth excavators.
3. Tipper equipment.
4. Tunneling equipment.
5. Lifting equipment.
6. Concrete mixer equipment

V.MICROSOFT PROJECT

The building is defined as any structure what so ever purpose and of what so ever materials constructed and ever part thereof whether used as human habitation or not.

For this practical training, I reported at construction of commercial building, at Tambaram East, Selaiyur BSNL Office. I have reported to Mr. Prabakaran (Project Manager) at Three key builders, furthers ordered me to join project site. The site in charge Mr.Avinash meets me at the site and gives me brief introduction of this project as under.

5.1 ON SITE

5.1 FEATURES OF MSP:

- Project Portfolio Management
- Simplify IT management
- Give effective presentations
- Anticipate change
- Work seamlessly across tools
- Communicate in real time
- Stay organized

V1.CONCLUSION

From the above literature it is concluded that there are many methods of increasing productivity in construction industry. There is enormous study on the methods which improve the productivity which consists of material tracking, healthy and safe working condition and effective management systems.
It is seen that some methods are more efficient in the context of increasing productivity like,

- Automatic materials tracking
- Work sampling method
- Collaboration between industries
- Construction productivity improvement officer

There is a need for exploring more efficient strategies for improving the productivity. It has been noted that increasing the productivity by such above methods have reduced cost and time but haven't create an effective baseline in the field of construction industry.

1. The clarification in technical specification factor ranked 1st among the 38 factors having R.I.I value is 79.22%. It is important factor in productivity. Every work should be clearly specified.

2. Working overtime factor ranked 2nd among the 38 factors having R.I.I value is 76.8%. Working of labor should not be more than 40 Hours per week and not more than 8 hours per day. After the 8 hours efficiency of labors decreases and which effects on productivity.

3. Labor fatigue factor ranked 3rd among the 38 factors having R.I.I. value is 76%. After 8 hours labor is not present on site mentally. For decreasing labor fatigue another group of labor appointed and it helps for increasing productivity.

4. The delay in payment factor ranked 4th among the 38 factors having R.I.I. value is 75.2%. Payment strictly done on time which helps for increasing productivity.

5. Lack of construction manager leadership factor 10th among 38 factors having R.I.I. value is 70.4%. Every group of labor should be one leader. He is responsible for competing all work within time. It helps for increasing productivity.

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