A STUDY OF FACTORS AFFECTING ON LABOUR PRODUCTIVITY FOR PRECAST FLY OVER BRIDGE CONSTRUCTION AND RECOMMENDATION FOR IMPROVEMENT

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Abstract: The productivity is the key factor for any growth of the construction firm because it play dual role such as performance of the industry and economic growth of the industry .The productivity rate of the construction firm can be raised by proper planning , scheduling and controlling the resources. This proper management system can reduces the time ,cost and also increases the quality of the end product. In any construction firm the resources are namely man, machine& material & finance are utilized to get a better quality of product. Out of this labour productivity is play importance role for the performance. The improvement of productivity is the main task of any organization and it depend upon the performance of workers. This study identify various factor affecting on labour productivity on precast fly over bridge construction .The questionnaire is prepared from studying the literature survey and opinions from the experts. Relative Importance index (RII) was used for analysis the data. This method are used to relative importance of the various factor affecting on labour productivity .Finding indicate that the top factors those are highly impact on labour productivity are analyzed and giving recommendation for improvement of those factor.

Index term **– Productivity, RII method, labour , scheduling, controlling**

I.INTRODUCTION

A)GENEARL

In India many of the construction firm are not survival due to lack of the construction performance & productivity . According to the Construction Industry Development Council (CIDC), India's construction industry employs a work force of nearly 32 million and contributes 8% to the Nations Gross Domestic Product (GDP) .In India nearly 40 to 50% of the total expenditure is utilized for various sector such as highway ,bridges, airport, railways etc .This construction sector is the largest sector after the agriculture .[3] In construction sector ,there are number of resources involved such as labour, machinery, material & fiance out of these labour is the main resource in construction because it play an important role for performance of the construction firm..The material cost is fixed by studying specification ,profits and overhead charges & it can be controlled by project manager at the time procurement process but labour productivity is the practical challenges for improvement of the productivity and it is very difficult to faced by project manager and contractor while performing the work. The main objective of this project to study the various factor affecting on labour productivity in fly over bridge construction and giving recommendation for improvement of those factor.

B) PRODUCTIVITY

Productivity is defined as the the amount of output(volume) that is obtain by each labour workforce or in simple word the total hours required to complete the task by number of labour. For achieving the better productivity the main task to study the actual cost of the labour and there is fluctuation in labour cost that affecting on level of the productivity .In every project there is cost,time and quality are main concern .If the performance of labour is improved automatically the productivity is get improved .The organization should be take care for the labour productivity by improving the work skills&conducting training ,motivational factors, better quality equipment, material and working conditions.

C) OBJECTIVE

- To study the various factor affecting labour productivity in precast fly over bridge construction.
- To analysis& calculate Relative importance index for those factors affecting on labour productivity.
- To take recommendation for improve the labour productivity.

II. PROPOSED METHODOLOGY

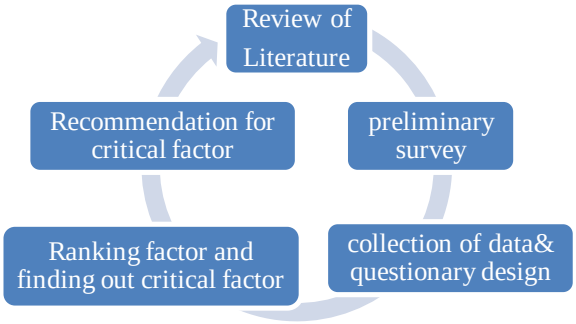

figure no1 proposed methodology

III.DATA COLLECTION

The questionnaire survey includes various factor affecting on labour productivity and it convey to the respondents through a google forum technology, before sending the questionnaire survey it is to be tested by pilot study method. The pilot study method is nothing but trial of the main survey. In that type survey some opinion are taken from expert to known the impact of the questionnaire survey, while drafting the questionnaire survey following points are keept in mind those are 1) Questionnaire start with general information of the respondents and organization. 2) The size of the questionnaire survey is small. 3) The sequence of the questionnaire survey starts with easy to high. 4) Questionnaire survey must be yes/no ,multiple choice or open –ended 5) Cross –check the questionnaire to check the information right or wrong 6)The factor which are not important they should removed 7)The factor should have rearranged for suitability .The respondents can give the rank of each factor affecting on labour productivity .The collected information was checked by relative importance index. For framing the questionnaire survey likert scale are to be used to rank the importance of each factor

table no1 likert scale to rank the importance

IMPACT	LOW	MODERATE	HIGH	VERY HIGH
RANGE	1	2	3	4

IV. DATA ANALYSIS

A) DATA ANAYSIS METHOD

The questionnaire survey was examine by relative importance index which will help to determine the relative importance of each factor those are affecting on labour productivity and found the top most factor .The following formula are used to calculate the relative importance index.

$$RII = \sum W / A*S \qquad (4.1)$$

Where ,
W= weighting given to each factor by the respondents (1 to 4)
A=Highest weight (i.e 4)
S= Total number of respondents

table no 2result for factor affecting labour productivity by RII method

Sr.No	Factor affecting	RII= ∑ W /A*S	Ranking
1	Class of labour	0.750	2
2	Approach of labour towards work	0.659	7
3	Performance of the labour	0.750	3
4	Communication gap	0.523	14
5	Use of the recent technology	0.614	10
6	Lack of protection from weather cond.	0.500	16
7	Location of material storage	0.614	9
8	Accident during site	0.300	20
9	Standards of PPE	0.675	6
10	Delay of material	0.400	19
11	Climatic conditions	0.525	13
12	Working conditions of the equipment	0.705	5
13	Conflict between labour	0.455	17

14	Rest time during working conditions	0.575	11
15	Poor knowledge of the technical person	0.432	18
16	Delay of providing services	0.500	15
17	Delay of payment	0.717	4
18	Complex design in drawing	0.643	8
19	Training of labour	0.788	1
20	Method of construction	0.561	12

table no 3 result for main factor affecting labour productivity by RII method

Sr.No	Factor affecting	RII= ∑ W /A*S	Ranking
1	Class of labour	0.750	2
2	Approach of labour towards work	0.659	7
3	Performance of the labour	0.750	3
4	Use of the recent technology	0.614	10
5	Location of material storage	0.614	9
6	Standards of PPE	0.675	6
7	Working conditions of the equipment	0.705	5
8	Delay of payment	0.717	4
9	Complex design in drawing	0.643	8
10	Training of labour	0.788	1

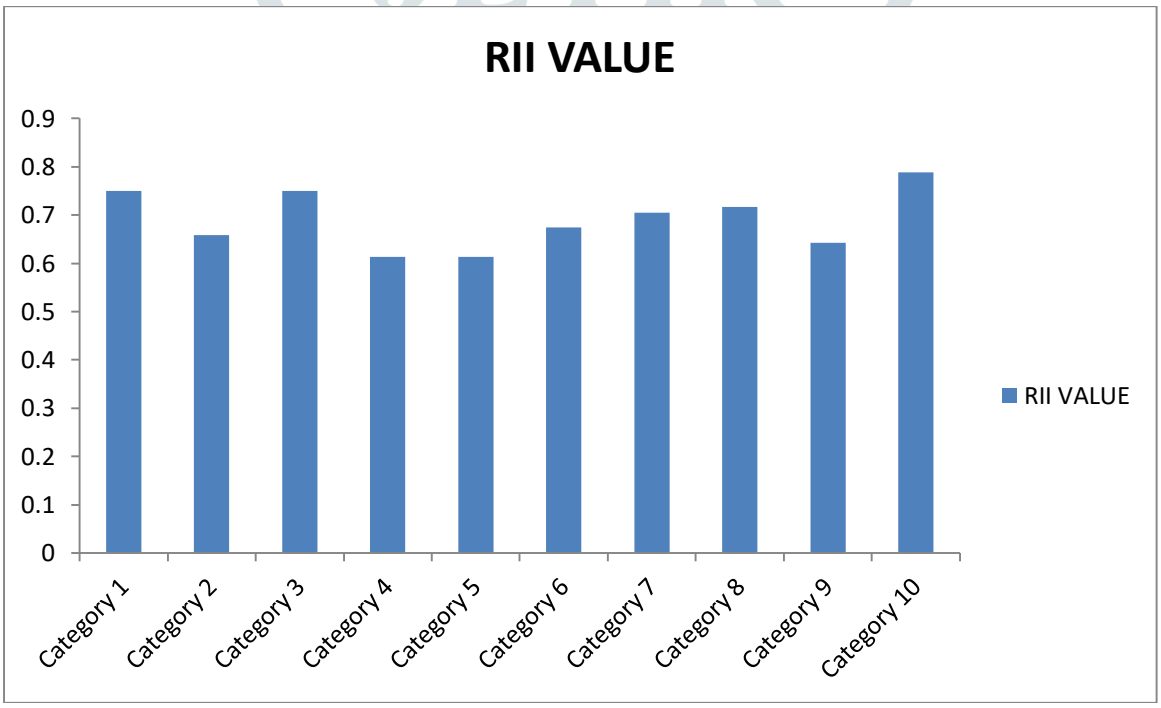

Figure 2 statically analysis of top 10 factor

V. RECOMMENDATION

A. Class of labour

To identify the class of labour (either skilled, semi-skilled, unskilled),the contractor should have check the skill of the worker at the time of procurement process. If there is shortage of skilled labour, the outsourcing labour from outside the area should hired

B)Approach of workers towards site

If the construction site is located in remote area where transportation facility is not available to reach the work site the organization should provide transportation facility should given to worker or the organization should provide shelter at the workplace.

C) Performance of the labour
The organization should have check the worker age, wages, worker effort, work environment at the time supervision. The performance of the labour should measure with changing the semi-skilled labour with skilled labour.

D) Use of the recent technology
The use of the recent equipment should be introduced at work site. This can help for reducing time and cost and increase the labour productivity .

E) Location of material storage
Purchasing material should stored at the workplace so it can accessible to the worker, so that the time required for collecting material is less hence the productivity is increased. The material should be stored at close to constructed site .

F) Standards of PPE:
The organization should provided the safety devices on site so that worker can improve there work efficiency .The safety officer should check the PPF periodically and repair it also they can display the wearing procedure at the workplace and should conduct TBT at every morning before work start time

G) Working conditions of the equipment
The operator should have check the equipment daily, periodically after the completion of the work .If any defects are found out immediate convey to responsible person at work place .

H) Delay of payment
The contractor should have provide the regular payment to the sub-contractor.

I) Training of labour
The organization should have plan for the training of the worker. The organization should have appointed person as guideline for work .

VI.CONCLUSION

These paper has identify that the factor affecting labour productivity those ranked by relative importance index. The top 10 factors such as Class of labour, training of labour, Approach of labour towards work, Performance of the labour, Use of the recent technology, Location of material storage, Standards of PPE, Working conditions of the equipment, Delay of payment, Complex design in drawing, Training of labour that are affecting on labour productivity. The project manger should have check the time, cost and quality of the of every project & also take the study on those factor affecting on productivity and should reduces the factor at on site by a proper planning .

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