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Optimization of Labour Safety and Risk Management in Construction

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ABSTARCT: The construction industry has been examined as a highly unsafe industry because of more number of deaths caused by many incidents/accidents. The working sites need changes within the nature of labour, the situation of manual labour and the mixture of skilled and unskilled workers. As the Indian construction industry remains labour-intensive the correct harmonization between workers, artisan, customers, and workforce is required for a secure labour environment which is considerably lacking.

The research has demonstrated the recognition of unsafe working condition. And so, the underestimation of safety risk may be a widespread problem. therefore, effective safety administration is the major thing to acknowledge and managing hazards and prioritization to safety a must and this will also lead to enhanced success in project accomplishment.

The work was initiated by preparing a questionnaire survey among the various persons involved in this work, its present system of practice happening with respect to safety in the real estate sector in a metro city and to ascertain the quality of output received through the questionnaire and also to quantify the data and the influencing factor among the psychological factors as the major influencer in the safety of building sectors. It is further helped to optimize the factors influencing safetyin the construction industry

I. INTRODUCTION

Complaints improved employee morale and satisfaction increased productivity reduction of hidden cost reduced insurance cost.

The development of infrastructure is one of the most important activities that can boost up the business of various industries, thereby increasing the gross domestic product (GDP) of the country. Risk is defined as any action or occurrence which will affectthe achievement of project objectives. Risk management is a technique which is used in many other industries from, IT related to business, automobile, pharmaceutical industry, to the construction sector.

Safety means free from danger or risk and managing the workers/ labors ensuringsafety is called management.

Therefore, safety of labor at the site should be kept in minded. The best way to product workers against dangerous to control problem at the source. The problem regarding construction industry is not that the hazard and risk are unknown. But it is very difficult to accurately identify in a construction changing environment.

II. PROBLEM IDENTIFICATION

The safety of construction industry will directly affect the personal safety of the construction personal. Therefore, the safety management of construction project should be sustainable development. Less supervision of the relevant management department. Enterprises do not attach importance to the problem of safety management. Safety precautions is weak. In 1996 the building and other construction work less regulation of employment and condescends of service 1996 was formulator. The central rolls Ander this act ware notified in November 1998.

III. SOLUTION OF PROBLEM IDENTIFICATION SAFETY IN CONSTRUCTION

ROLE OF SAFETY OFFICERS

The basic function of safety officers can be listed as follows: Inspection of shops, and equipment's, with a view to identification of hazards, unsafe practices and conditions, Assessment to hazards and help liquidation of unsafe point so that at least acceptable level of risk is achieved. Investigation of all minor and major accident and documentations of statics and building of management information system.

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CONCEPT OF RISK ANALYSIS AND MANAGEMENT

PROJECT RISK:

Risk management in a project encompasses the identification of influencing factors which could negatively impact the cost schedule or quality objectives of the project, quantification of the associated impact of the potential risk and implementation of measures to mitigate the potential impact of the risk. The riskier the activity is, the costlier will be the consequences in case a wrong decision is made. Proper evaluation andanalysis of risks will help decide justification of costly measures to reduce the level of risk. Risks cannot be totally avoided but with proper management these can be minimized

FACTORS AFFECTING RISKS

Management Stability:

Management stability means the whole management share the same goal or objective for any project. Therefore, it will be beneficial to achieve the project objectives with much ease. If the management is unstable then it can lead to affect the project objectives.

Staff expertise and experience*:*

If the staff for any project is sufficiently experienced and with different expertise the likelihood of quality, cost and other objectives can be achieved.

Team Size:

For larger teams of any project there are more chances of occurrence of problem because of miscommunication.

Resource Availability*:*

If the project is available with a good number of resources, then the response to theproblem will be good. Because if the project is available with greater number of resourcesthan it can deal with different risks with ease.

Time Compression:

If the project schedule is highly compressed there are more chances of occurrence of risks in projects. When more time is available for the project, then it can be coped up by reducing risk impact on the project.

RISK MANAGEMENT PROCESS

Brainstorming:

This is one of the most popular techniques. Generally, it is used for idea generation; it is also very useful for risk identification. All relevant persons associated with project gather at one place. There is one facilitator who is briefing about various aspects with the participants and then after note down the factors. Before closing it the facilitator review the factors eliminate the unnecessary ones.

Delphi Technique:

This technique is similar to brainstorming but the participants in this do not know each other and they are not at the same place. They will identify the factors without consulting other participants. The facilitator like in brainstorming sums up the identified factors.

Interview/Expert Opinion:

Experts or personnel with sufficient experience in a project can be a great help in avoiding/solving similar problems over and over again. All the participants or the relevant persons in the project can be interviewed for the identification of factors affecting risk.

Past Experience:

Past experience from the same kind of project, the analogy can be formed for identification of the factors. When comparing the characteristics of projectswill provide insight about the common factors.

RISK MANAGEMENT IN CONSTRUCTION PROJECTS

The major risks that usually crop up in front of a project manager while helming a construction project are: financial, socio-political, environmental, and construction related.

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Financial risks
Vacillating exchange rates, material costs, market demand, improper estimation, inflation, payment delays, unmanaged cash flow and financial incompetence of the contractor pose a huge threat of financial risks in a project.

Socio-Political risks
Amendments in governmental laws and regulations, law and order, bribery, payment failure by the government, increase in taxes and change in government form this repertoire.

Environmental risks
Inclement weather conditions, natural disasters, accessibility to the site, pollution and safety norms constitute the environmental risks.

Construction-related risks
Failure of logistics, labor disputes, design changes, labor productivity, rush bidding, time-gap for revision of drawings, shoddy work quality due to time constraints et cetera comprise the construction-related risks.

DATA COLLECTION AND ANALYSIS
COLLECTIONS OF DATA FROM QUESTIONNAIRE SURVEY
The questionnaire was developed to assess the perceptions of owners, consultants, architects and contractors due to the importance of sustainable construction. The projects were first examined and identify through a relevant literature review and by conducting pilotstudy that sought advice given from the experienced construction practitioners.

ANALYZE THE DATA
Questions are distributed to fill the questionnaire. The companies are selected randomly based on the availability of contractor, owner and consultant. Based on literature this project needs to attain a minimum of 45 respondents. So around 30 companies will be selected and approached for distributing question. Later the questionnaire are collected and thus analyzed in standard methods. In the questionnaire, there are mainly two types of questions which are closed questions and open question. For the closed questions, they are questions with options only and attitudinal questions with rating scales.

The score for each option is calculated by summing all the numbers chosen by the occupants. The average of score is then calculated to show the number of using of the green features by the occupants. The higher the performance score, the higher the frequency of using the green features. By using the same analysis method, a question with rating scale of 1 (poor) to 5 (excellent). It is designed to assess the satisfaction level of occupants by using aspects which directly affected by the green features. Similarly, the performance scores are calculated by summing up and averaging the scores. The higher the performance score, the higher the satisfaction level of the occupants.

IV. RESULTS AND DISCUSSION

TYPES OF SAFETY EVENTS
Different types of safety events in the manufacturing industry. According to this study, safety events occur in the industry at a ratio of 1 major injury or death for every 29 minor injuries, and for every 300 "near misses".
Later studies divided the pyramid into 5 layers:

- Unsafe act or condition
- Near miss
- First aid
- Recordable
- injury Fatality

V. CONCLUSION

A proposed safety management methodology has been presented for large and complex construction sites. The methodology includes a risk control process based on continuous improvement, which utilizes data collected in an audit program to evaluate the safety performance of different crews on site. The methodology utilizes information on ratios that can be determined between different types of safety events in order to identify deviations that require control actions, and in order to reduce the number of severe safety events by reducing the number of unsafe acts that lead to such events.

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It has been identified that safety management is most impotent area in a constriction work which ensures sound health of workers in the construction site and also prevents occurrence of different types of hazards and accidents in a construction site.

Studies conducted disclose more than 80% of all accident result from worker unsafe acts while only 10% result from failure equipments or improve procedure apparently. This is the most potential for improving safety performance. Also the behavior of managers on every level has significantly influence on worker safety performance.

REFERENCES

1. Nithya C Joseph, K. Revathi, P. Ezhilmathi, "Assessment of factors influencing labour productivity in construction", Coimbatore, Vol-6, Issue-12, pp 4-7, December 2017.
2. Ponmalar V, Aravindraj V, Nandhini K, "Study of factors influencing labour productivity in residential buildings in Indian scenario",Chennai, Vol-2, Issue-2, pp 239-248, February 2018.
3. Priyanka Methe1, MahaboobaliNadaf, Rashmi J.V, K.P. Thejaswi, "Identification of factors influencing equipment productivity in construction projects", Vol-5, Issue-6, pp 379-384, June-2018.
4. B.Prakash Rao, AmbikaSreenivasan, "Factors affecting the labour productivity in Bangalore", Vol-4, Issue-4, pp 1082-1084, April 2015.
5. Sherif M. Hazef, Remon F. Aziz, Enas S. Morgan, Madeha M. Abdullah, EmanK. Ahmed, "Critical factors affecting construction labour productivity in Egypt", Vol- 2, pp 35- 40, March 2014.
6. Mahanadi.I (2013) "Contractor's perspective toward factors affecting labor productivity in building construction". Engineering, construction and architectural Management, 2 (5) pp.446-460.
7. M.R. Abdul Kadir, W.P. Lee, M.S. Jaafar, S.M. Sapuan and A.A.A. Ali, 'Factors affecting construction labour productivity for Malaysian residential projects', Structural Survey, Vol. 23 (1), pp. 42-54, 2005.

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