ABSTRACT

The construction industry is the second largest employer after agriculture, employing 33 million people (Construction Industry Development Council (CIDC) report, 2005-2006) in India. Large percentages of the work force are illiterate, unskilled, untrained, and migrant; most of them are drawn from rural background. There is no established pragmatic method of screening workforce prior to deployment at construction sites. Coupled with this the general adverse physical/environmental operating conditions and the temporary nature of work, associated with high risk potential make construction industry more prone to accidents. Accidents resulting in loss of life and body parts have been rampant. Safety in the construction industry has always been a major issue. Construction is considered to be dangerous on safety and health criteria, particularly in developing countries like India. Though much improvement in construction safety has been achieved, the industry still continues to lag behind most other industries with regard to safety.

At present the Indian construction sector is unorganized and enforcement has not yet started to its fullest extent, no accident reporting system is followed by construction companies and hence, there is no reliable and accurate accident statistics.
This thesis analyses in detail about the factors that affect safety in construction sites. Besides this, the research also studies the reasons behind accidents in construction sites, ways to reduce the construction related accidents in India, explores the techniques that organizations in India adopt in order to provide safety at workplace and finally explores how safety management procedures could be implemented at their best in the construction industry.

This research helps in understanding the relationship between management process intervention and management process outcomes for safety in the construction industry. In order to attain the research objective, this present research has taken different construction companies for consideration in India. This study has taken India into consideration, since India faces many challenges in the construction field. These challenges affect the safety of the workers directly or indirectly. In order to find answers to the proposed research questions, the researcher has done a quantitative as well as qualitative study on the responses collected from managers and workers belonging to different construction companies in India. A descriptive research design is adopted in the research. The target respondents are selected through simple random sampling and quota sampling. The collected data is analyzed through sample percentage methods respectively. The proposed research hypothesis is tested with the help of statistical tool, the Karl Pearson
correlation co-efficient test. In addition, the analysis of variance (ANOVA) test was also conducted to test the proposed research hypothesis. Statistical Package for the Social Sciences (SPSS) is used to analyse the collected primary data. This present detailed analysis about the factors that affect safety in construction sites is done so as to form a basis for development of the new total construction safety management model systems.

The main objective of this research work is to develop a dedicated site based total construction safety management system model, based on the Plan-Do-Check-Act (PDCA) cycle which will act as a generic tool to prevent the majority of the accidents at construction projects in India as well as developed countries. A new total construction safety management model system has been developed and implemented. The present study has an objective to identify international practices in performance measurement for safety in construction.

A framework for measuring the performance of safety management processes and related outcomes was developed to stimulate an improvement on projects. This framework was then implemented and established to monitor the performance of the safety management systems and related outcomes, before and after the implementation of key safety performance indicator (KSPI). A new Key Safety Performance Indicator on Health,
Safety and Environment (HSE) of the checking and corrective phase of the newly developed total construction safety management model system has been developed and implemented.

A framework to reduce the electrical accidents in construction site was also developed. The present study had developed and implemented an electrical safety audit tool and its effectiveness had been evaluated by implementing at construction site. The electrical safety at construction site is studied in detail, since it has been given lowest importance in identifying hazards on electrical safety and implementation at construction site based on the newly developed Key Safety Performance Indicator on HSE and electrical accident statistics.

The present research has deduced the fact that efficient safety management techniques are essential for today’s construction companies and adaptation of proper safety management techniques will help organizations in providing a better workplace to its employees and reduce the accidents. Further, the present study had offered suggestive strategies that organizations could adapt in implementing safety management techniques, effectively and efficiently, in the long run.