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OVERVIEW OF INDIAN CONSTRUCTION INDUSTRY & SMEs

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Abstract - *The aim and scope of this paper is to identify the overview of construction industry and SME's in construction field. The exceptional growth of Small and medium enterprises (SME) has been strictly features in the economic development of the country. It has contributed to the overall growth of the GDP as well as in term of employment generation and export in the global economy.*

After markets globalization and pandemic 2020, SMEs are facing constraints to sustain in the market. The purpose of this work was to identify the relation between the project's problem and the use of project management processes in Small and unorganized firms in construction.

Key Words: SME's, organizations, Project management

1. INTRODUCTION

In India, the construction industry plays a vital role in the economy of the country. It employs a significant share of the workforce, contributes largely to the GDP (Gross Domestic Product) of the country, and is seen as a key promoter for the growth and development of the Indian economy. This construction industry configuration is reasonably uniform across all developed countries, with the fraction of small firm activity being even more pronounced in developing countries. The potential impact of SMEs (Small & Medium scale Enterprises) to the economy leads to the conclusion that they need to increase their competitiveness and quality to match or exceed the competition. The management of small firms tends to come about in very unpredictable, informal ways. For example, one of the principal ways of communicating information is via informal face-to-face discussions between individuals which mean that there generally are no printed records. They usually do not have systems in place to control and monitor projects and they have ill-defined project management roles and structures. This non-standardized project management practice among small and medium firms affects progress and contributes wastage. Use of project management will play a significant role in the management of innovation and growth in SMEs, in a way that is tailor-made to meet their requirements.

1.1 SMALL & INFORMAL CONSTRUCTION SECTOR

Small and unorganised firms may be defined in a number of ways e.g. in terms of investment, technique of production, volume of output and sales, number of persons employed, productivity etc. In such firms, investment is made by an individual or a group of individuals. Mostly small business units are run as sole-proprietorship and partnership. Small business enterprises are mostly labour-intensive. The equipment and machinery used are operated manually and not very sophisticated. Unorganised businesses employ less workforce as compared to big players in the industry.

1.2 PROJECT MANAGEMENT

The Project Management Institute (PMI) defines project as "a temporary endeavour undertaken to create a unique product, service or result" and project management as "the application of knowledge, skills, tools and techniques to project activities to meet their requirements" (PMI, 2008). Even if conceptually, the use of project management is related to the proper performance of goals and concepts of business strategy to corroborate this necessity.

However, there are problems in the acceptance of project management, especially among those who are used to traditional methods of managing a project**.** The goal here is to describe the steps and guidelines to assure that all of the needed work to successfully conclude the project is done. The processes of the scope knowledge area are: Plan Scope Management, Collect Requirements, Define Scope, Create WBS, Validate Scope and Control Scope.

Project Management Processes:

a. Project Scope Management: Constant scope changes & Inadequate scope definition

b. Project Time Management: Deadlines not being met

c. Project Cost Management: Budget not met

d. Project Quality Management: Rework due to lack of product quality

e. Project Human Resources Management: Insufficient human resources

f. Lack of competency to manage projects.

g. Project Procurement Management: Problems with suppliers

2. LITERATURE REVIEW

(Meister W. 2006) Formal project management is not widespread in Small Medium Enterprises. Most of the office work and normal business activities are looked at by the staff

in an informal manner and in most cases without any project management training. This is not to say that their projects are not successful. Many Small Medium Enterprises handle projects well and are successful. This could be due to their tactical knowledge and the individuals involved rather than a conscious effort. But these companies could be falling short of their potential and may perform better if they follow a proper formal system of project management practices. Project leadership also plays a major part in project success. "Management, produces a degree of predictability, focuses on systems, relies on control, organizes and staffs, accepts the status quo and motivates people to comply with standards. Leadership on the other hand, produces changes, focuses on people, relays on trust, aligns people with direction, challenges the status quo and inspires people to change.

(Turner et al., 2009), in the first stage of their study gathered preliminary data on the use of project management in SMEs in Ireland. Thereafter they interviewed 18 companies from Ireland, Sweden, Austria and Romania. They used a web-based questionnaire to obtain quantitative data from a larger range of respondents. The first part asked questions about the company. To determine the size of company: about the number of employees and turnover. The second set of questions related to the nature of projects within the company. These questions were essentially the duration of the company's projects, the size of project teams and whether the company employs dedicated project managers. It also enquired whether any Project Management tools and techniques were used and which project management practices the respondents thought were essential, useful or excessively bureaucratic. This study concluded that smaller younger companies tend to use less formal project management processes than larger older ones. Micro-sized and small companies need less bureaucratic, more people focused forms of project management, to facilitate the work of teams of generalists. Medium-sized and large companies need more formal project management approaches to coordinate the work of teams of specialists. But medium-sized companies still simpler forms of project management than large companies.

(Alejandro J. Roman 2007) A Small Medium Enterprises needs the same management and operation tools as any company, of course adapted to its size, but if in any case it is formalized it is essential for any organization to consider the "Change" manage it, especially to take into account the needs of those involved (read stakeholders). Difficulties arise sometimes because of the nature of the SME with its objectives contradicting with the fast changes and the idea of living up to date. Introducing changes in this type of organization sometimes results in difficult times to digest and implement. The author's proposal for the SME (Small Medium Enterprises) is to introduce small visible changes in the immediate, always from the integrative perspective of the client and the profitability of their business.

(Clinton Aigbavboa and Wellington Thwala, 2010) According to the authors they focused on the execution phase of project management process i.e. mainly on the construction stage. After all reviews and observations they found that the small and medium-sized firms are mostly owned by solely one person who controls and have adapted self-style project management techniques. SMEs (Small Medium Enterprises) need project management to manage their innovativeness in a focused manner and to achieve growth and satisfy their strategic objectives A Large number of construction SMEs(Small Medium Enterprises) in Ghana partially practice the standard Project Management techniques depending on the size and type of project as most of this construction SMEs(Small Medium Enterprises) in Ghana are family-owned businesses and, therefore, adapt self-styled management for their operations.

3. PROBLEM DEFINITION

Unorganized companies use less or no project management techniques and its tools. Small and unorganized firms have lower degree of standardization and are specialized in multitasking with one party handling multiple responsibilities.

Small scale firms tend to ignore many factors that lead to loss of profits they could have gained had they followed proper planning and management. Some of the issues are as under:

Lack of awareness and insufficient site)

Lack of proper planning (mobility of equipment and increased idle time of resources)

Unorganized companies tend to ignore/take lightly the delay of activities, the consequence of which is not realized initially.

Scheduling of activities improper because of which resource allocation becomes difficult

No proper record of activities on site because of not maintaining Daily Progress Reports (DPR) / Weekly Progress Reports (WPR)

Conflicts between End Clients and Construction Firms

Site Safety highly compromised.

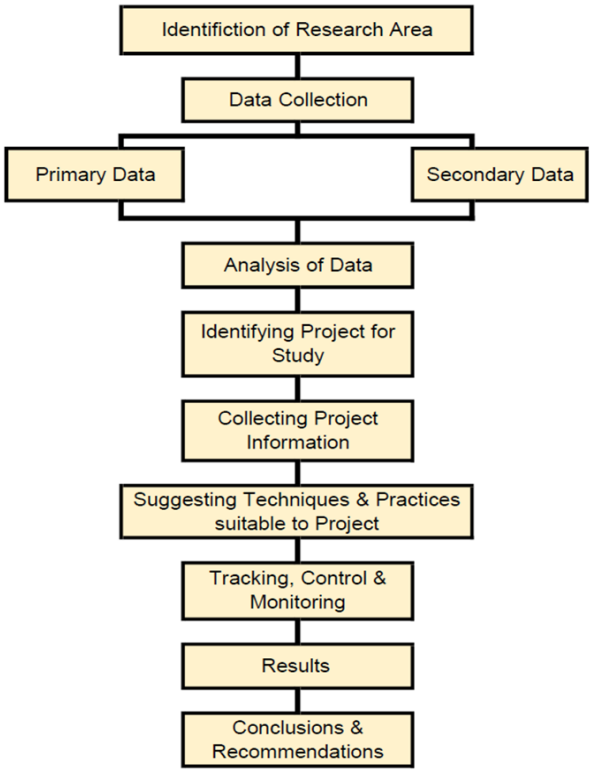
QA/QC not ensured.

Tracking/monitoring of status of ongoing activities becomes difficult because of above issues

The purpose of this study was to find the construction management practices adopted by Small & Medium scale contractors/enterprises/developers. A survey was conducted to study the techniques, equipment and the kind

of projects adopted by these firms. An attempt was made to implement some project management techniques in one of the firms. Based on the study of the firm and we tried to analyse how the use of project management systems and the tools of project management help in improving its performance.

4. METHODOLOGY



Small sized construction projects are found to be managed both intuitively, i.e. based on experience and systematically and using methodologies for risk and uncertainty management.

The systems are, however, developed with the intention of fitting all sizes of projects and not specifically small sized projects. As a result, this study focussed on providing practical and implementable techniques and approaches to improve the performance of these firms.

The data collection was done through literature studies and questionnaire surveys. The literature survey helped analyse previous studies of researchers across the world and understand the commonly observed issues and solutions in this sector. Whereas the questionnaire surveys helped in a more localized approach to understand the issues that are faced by the construction firms closer to home and the organizational and managerial structures followed by them.

Based on the analysis of the data collected, a pilot study was conducted on a live project to check the applicability and the effectiveness of certain project management systems and techniques on a construction project. . The impact of these systems on the project were observed and it was concluded that these techniques indeed helped in higher performance.

After the pilot study, a project was identified for closer monitoring and study regarding the implementation of PMST on the project. The issues and shortcomings of the project were noted and accordingly, an attempt was made to guide the firm by providing them with various project management and quality control tools which are generally used by well-established firms. These solutions were modified to suit the requirements and the scale of the small and informal firms.

Regular monitoring and tracking of the activities at site was done. This close monitoring helped minimize errors and improve productivity, quality and safety at site.

5. ANALYSIS OF DATA

5.1 LITERATURE ANALYSIS:

After going through literatures about SMEs, project management and various methodologies adapted to conduct research, a basic understanding was obtained, beginning with trying to understand how projects are managed in the construction industry followed by project control mechanism in construction projects and how the small and unorganised firms need to be handled in a manner which is different compared to the established firms.

From the literature studies, some basic assumptions were identified, a paper (Rodney Turner and Ann Ledwith) differentiates SMEs from large scale projects:

Processes: SMEs require simple planning and control systems, informal evaluation and reporting.

Procedures: SMEs have a low degree of standardization, with idealistic decision making.

Structure: SMEs have a low degree of specialization, with multi-tasking, but a high degree of innovativeness.

People: Because of the higher consequence of failure in SMEs, people prefer tested techniques.

Another paper guided in the approach towards questionnaire survey and how to analyse the responses to the survey and categorize the information obtained.

A paper by Joao Filipe de Oliveira Baptista et al stressed that, for reducing project management problems in SMEs, they should focus on systematic planning, control and monitoring which will enable systemic vision of the projects, process optimization, risk reduction, deviation minimization and communication improvement.

Thus, the literature survey helped us compare previous studies in similar topics studied across the world and gain perspective in our approach towards our study.

5.2 ANALYSIS OF QUESTIONNAIRE RESPONSES:

A questionnaire was prepared for comparative analysis of various organizations in aspects such as organization pattern, type of firm, details of owner/entrepreneur details, details of projects handled etc. The questionnaire was circulated to managers and site engineers of various businesses and suitable responses were received from 11 firms which enabled us to identify the nature of their work, their workforce, safety standards and management techniques implemented. The survey was also conducted for 2 well established and large scale firms (NCCCL Pvt. Ltd. & Pacifica Companies) whose response helped in the comparison of the characteristics of the smaller firms with respect to the more structured organizations.

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SR. No.	Question	Responses
1	Name of the Firm	M/s. Pratibha Coatings
2a	Location	Rasayani, Panvel
2b	Address	Near TCI, Dand Apta Road, Rasayani, Maharashtra.
3a	Email	info@pratibhacoatings.com
3b	Phone No.	
4	Year of Establishment	1995
5	Organization Pattern	Proprietorship
6	Type of Firm	Contractor
7	Specialization	Industrial Construction
8	Owner Details	
8a	Name	Pradeep Joshi
8b	Age	48
8c	Educational Qualification	Diploma in Civil Engg.
8d	Previous Experience	25
9	Size of Labour	30-40
10	No. of employees working in the company	7
11	No. of working days in a week & work hours per day,	6 days, Hours
12	No. of trained person in the company	5
12	No. of project handled in the last 5 years	10
12a	Highest value of a project in your scope	1.00 Crore
13	Major problems faced during	Finance

	execution	
14	Software used if any?	Excel, AutoCAD
15	Average duration projects handled	6-7 months
16	Primary factor influencing execution of project in terms of project performance	Quality Standards, Client Consultation
17	Equipment owned, rented by the company.	Sub-Contractors

TABLE 6.1 Compilation of Responses to Questionnaires

The responses received were from a diverse range of projects. The common characteristics of the projects that could be surmised from the responses and the conversations with the respondents can be categorized into 4 parts:

1. Nature of the Company:

The responses gathered Proprietorship firms that were started as independent ventures. To determine the size of the company, the major criteria of judgement was the number of employees and their turnover. The number of employees is generally a parameter to determine size, and place the transition from micro to small at 15 employees, as suggested by Turner et al. (2010), and from small to medium at 50 and medium to large at 250 employees as suggested by the European Commission (2005). The age of the company is also a contributing factor to determine the scale of the firm. Among the responses gathered, the number of trained personnel in these firms does not exceed 20 which includes the number of engineers and supervisors working in them. Most of the companies who responded to the questionnaire were established in the last 10 years or less with Krushna Construction as the only exception which was established in 2004. The annual turnover of the companies from the responses gathered comes to less than ₹10 Crore. The project duration of most of these firms is also generally about 6-12 months. This is consistent with the study of J. Rodney Turner (2008) who suggested that in micro companies, over half the projects undertaken are less than three months duration, whereas in small companies the largest number is in the 3-6 month bracket and in medium-sized companies in the 6-12 month bracket.

2. Projects Handled:

The company specialized in either Infrastructure and Industrial Construction. A good mix of projects from different fields makes it easier to understand the common problems faced by these firms and try to find a solution that could be used by all of them by making minor changes.

3. Problems Faced:

When asked about the factors that the companies consider as important influencers for the execution of the project and the project's performance then the most recurring responses were – 'Clear Goals and Objectives' & 'Client Consultation' followed by varying responses from different firms. It is clear that importance is given by the companies to the client's requirement and the targeted goals. But to achieve these goals the companies faced a few hindrances. From the responses it could be inferred that one of the common problems faced by the construction firms was Scheduling and Management (especially managing the financial aspect). Other aspects are management of machinery, labour and liasoning.

The reason could be attributed to lack of proper project management methods in the projects. No software were used by the small scale firms surveyed; scheduling and project planning was done either manually or using MS Excel. Also there is no formal mechanism to track productivity and the progress of work.

4. Quality & Safety:

From the responses received, it was noted that most of the firms followed the practice of maintaining QC sheets on a regular basis. These inspection checklists are useful on construction projects that want to improve quality and productivity, reduce defect rates, and reduce re-work. Other measures adopted are following Standard Operating Procedures for smooth work flow and reducing errors. Regular QC tests on materials and concrete are also conducted by some companies to ensure quality. These various responses suggest that quality aspect is considered important by these firms and the measures suggested by these firms can be suggested to new construction companies without any proper QC procedures.

Care must also be taken that these suggested measures are also effectively implemented and does not remain merely on paper.

7. CONCLUSIONS

The construction process is complex system. The purpose of this work was to identify the relation between the project's problem and the use of project management processes in Small and unorganized firms in construction. There was significant improvement in the performance of both the projects covered under this study. It can be concluded that in order to reduce project management problems for the construction field SMEs, these companies should devote additional efforts on the systematic use of project management processes. Companies will benefit from some

advantages such as: systemic vision of the projects, process optimization, deviation minimization, communication improvement and more. The major challenge lies in convincing these small and unorganized firms to adapt these practices in their firm by informing them of its advantages and the time and cost saving it can bring about in their projects. With better performance, the credibility of the organization also increases and thus growing in the industry.

LIMITATION

The major limitations faced during the study is time constraint. Construction projects have a vast timeline, completion of projects like Sanskruti, from inception to completion takes several months. This prevented us from monitoring the entire project during our study and limited our focus to the activities that were carried out at the site in that period. The conclusions arrived in this study are majorly based on the tracking of brickwork in the project, along with few activities that were executed in parallel.

8. FUTURE SCOPE OF STUDY

This research gives a practical insight about the effectiveness of PMST in small and unorganized firms. Four parameters were considered for implementation of project management in this research viz. MSP Schedule, Quality Checklists, Weekly Progress Reports and Job Safety Analysis.

In the future, the scope of the study can be extended to application of Project Management in the areas of:

Material Management: It involves planning, identification, procuring, storage, receiving and distribution of materials. The purpose of material management is to ensure that the right materials are available at the right place, in the right quantity at the right time.

Risk Management: Managing construction projects requires dealing with uncertainty and events that may impact project delivery and also result in increased project cost. The further study could be to understand how risks and uncertainties are managed in small sized construction projects and how improvements could be made to the same.

Human Resource Management: It involves handling the labour at site and also handling the employees in the firm. Having the right employee for the right job will ensure that the productivity is high and the performance of the project is also good. It also involves keeping the workforce motivated so that all the employees work hard towards the success of the project.

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