RESEARCH ARTICLE OPEN ACCESS

Risk Management In Construction Projects Of Developing Countries

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ABSTRACT
Managing risks in construction projects has been perceived as a very important management process so as to accomplish the undertaking goals as far as time, cost, quality, safety and environmental sustainability. Projects have become shared effort of multiple parties and construction industry is a good example of an area, where the project outcome is delivered in an extremely complex actor network. By adopting risk management, savings' potentials can be realized in construction projects. For this reason, consideration of the risk management process is worthwhile for project managers as well as real estate developers. The implementation of risk management system in construction projects must be oriented towards the progress of the project and pervade all areas, functions and processes of the project.
For analyzing the levels of various risk factors in construction industry, questionnaire surveys were used to collect data. Based on a comprehensive assessment of the likelihood of occurrence of various risks and their impacts on the project objectives, this paper identifies twenty major risk factors. This research found that these risks are mainly related to (in ranking) contractors, clients and designers, with a few related to government bodies, subcontractors/suppliers and external issues. Among them, "Financial Risk" is recognized to influence all project destinations maximally, whereas working in hot areas, closure, defective design and delayed payments on contract are also some important risk factors. This research also found that these risks spread through the whole project life cycle and many risks occur in more than one phase, with the construction stage as the most risky phase, followed by the feasibility stage. It is concluded that clients, designers and government bodies must work cooperatively from the feasibility phase onwards to address potential risks in time. Also contractors and subcontractors with robust construction and management knowledge should be employed early to make sound preparation for carrying out safe, efficient and quality construction activities.
The aim of this research is to identify and evaluate current risks and uncertainties in the construction industry through extensive literature survey. It also intends to make a basis for future studies for development of a risk management structure to be adopted by prospective investors, developers and contractors in Developing countries.
Keywords-: risk, risk management, risk analysis, construction projects.

I. INTRODUCTION

Risk is defined as an uncertainty of outcome, whether positive opportunity or negative threat, of actions and events. The risk has to be assessed in respect of the combination of the likelihood of something happening, and the impact which arises if it does actually happen. Risk management includes identifying and assessing risks (the "inherent risks") and then responding to them.

Project management is the science which applies skills, tools and techniques to fulfill project activities in a way that the expectations and requirements of stakeholders are fulfilled or exceeded. Project risk management is an integral part of the process which aims at identifying the potential risks associated with a project and responding to those risks.

It includes activities which aim to maximize the consequences associated with positive events and to minimize the impact of negative events. It is believed generally that risk in an environment is a choice rather than fate, and the inherent uncertainty in the plans can affect the desired outcome of achieving project and business goals.

Risk is present in all the activities of a project; it is only the amount which varies from one activity to another. Risks and uncertainties are more inherent in the construction industry than any other industry. The process of planning, executing and maintaining all project activities is complex and time-consuming.

The whole process requires a myriad of people with diverse skill sets and the coordination of a vast amount of complex and interrelated activities. The situation is made even more complex by many external factors. The track record of construction industry is very poor in terms of coping with risks, resulting in the failure of many projects to meet time schedules, targets of budget and sometimes even the scope of work.

II. MANAGEMENT IN CONSTRUCTION

On the whole, construction contractors have been slow in applying proper management methods to the conduct of their business. Management in construction industry has been characterized as being weak, insufficient, nebulous, backward and slow to react to the changing conditions. Nevertheless, in the overall picture, the construction industry is at or near the top in the annual rate of business failures and resulting liabilities. Explanations are given for why the construction has been slow in applying management procedures that have proven effective in other industries. The reasons are :

- Construction projects are unique
- Construction projects involve many skills largely non-repetitive in nature

· Projects are constructed under local conditions of weather, location, transportation and labor that are more or less beyond the contractor's control.

· Construction firms, in main, are small operations, with the management decisions being made by one or two persons (Clough and Sears, 1994)

· There are special problems in construction

- The future cannot be forecasted
- Construction is a high-risk business.

III. THE SIZE OF THE CONSTRUCTION INDUSTRY

There is no doubt that construction is a key activity in any economy, it influences and is influenced by the gross domestic product (GDP) of any nation. Construction industry is defined as a risky industry with uncertainties that management has to deal with. A variety of external and internal factors influencing the construction process are main reasons of this situation. Forese et al (1997) stated that construction industry is characterized by having many players of multiple disciplines who are brought together at various stages throughout a single project. Construction projects are complex and time-consuming undertakings. The structure must be designed in accordance with applicable codes and standards, culminating in working drawings and specifications that describe the work in sufficient details for its accomplishment in the field. The construction projects have been divided into four main categories: residential construction, building construction, heavy engineering construction and industrial construction.

IV. QUESTION STRUCTURE

Risk factor for this study is classified as:

- Financial Reasons.
- Availability of Commodity/Resource.
- Quality of Commodity/Resource.
- Problem during execution of construction work.
- Due to Policy & Hedging Management.
- Nature of Human behavior.
- Due to delay of work.
- Due to variation of cost from current position to after completion of work.
- Contract Management.
- Availability of Fire controlling panel.
- Life safety Management.
- Delay of work due to Information/ Communication problem from top management to lower management.
- Due to lack of labour and Engineer.
- Due to quality of labour and Engineer.
- Handover of the project after its Completion.
- Due to lack and availability of highly effective equipment.
- Due to surrounding local body.
- Due to environmental issue.
- Due to demanding the project before completing time.
- Due to transfer of the project to other contractor because of any reason.

Result

All the risks observed in the questionnaire can happen to any construction project. On the basis of a survey with construction industry practitioners owning boisterous knowledge and experience of construction projects, 20 key risk factors were taken to measure, in which the main causes find out are “Financial reasons”, “Quality of Commodity” and “due to demanding the project before completing time”.

V. FIGURE

The above graph shows the order in which various risk factors affect the Construction Industry. The most influential factor is at No. 1position and the least is at No. 20. It can be clearly seen that "Financial Reason" is number one (most influential) factor affecting the construction followed by "Quality of Commodity" and so on. Variation of cost is the least influential risk factor.

VI. CONCLUSION

An effective risk management process encourages the construction company to identify and quantify risks and to consider risk containment and risk reduction policies. Construction companies that manage risk effectively and efficiently enjoy financial savings, and greater productivity, improved success rates of new projects and better decision making.

Risk management in the construction project management context is a comprehensive and systematic way of identifying, analyzing and responding to risks to achieve the project objectives. The research results show that our Construction Companies significantly differ from the Construction Companies in foreign countries in the adoption of risk management practices. To manage the risk effectively and efficiently, the contractor must understand risk responsibilities, risk event conditions, risk preference, and risk management capabilities.

The lack of experience makes it very difficult to change Lithuanian contractors' attitude towards risk management. Nevertheless, the construction companies need to include risk as an integral part of their project management. In our view, the use of risk management in the Construction companies is low to moderate, with little differences between the types, sizes and risk tolerance of the organizations, and experience and risk tolerance of the individual respondents.

VII. Acknowledgement

I would like to thank Shri Manoj Sharma, Dr. Ashutosh Shankar Trivedi and Shri Ramesh Kumar Batra for their assistance in preparing and distributing the survey questionnaires. I would also like to thank the practitioners who have promptly responded to our survey questionnaires. I would also like to thank our University for always motivating and encouraging us, thereby making our Research work Successful.

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