

# **Risk Associated in Real estate Projects: A Survey**

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**ABSTRACT:** Risks generally denote the negative impact to the real estate project's progression in regard to these will affect to the construction schedule, project cost and the quality of the products. This article highlights the importance, consequences and impacts of risks in the real estate development projects. The success rate of real estate project is decreasing as there is large scale of project and participation of entities. It is necessary to study the risk factors involved in the project. This paper focused on types of risks involved in the project, risk factors, risk management tools & techniques. Identification of risk of the project in terms of the total cost of the project has been divided under Technical, Financial, Sociopolitical and Statutory cost centers. Large real estate projects have to tackle the following issues: land acquisition, skilled labor shortage, non-availability of skilled project managers, and mechanization of the construction process to cater to the growing demands. Non- availability of supporting infrastructure, political issues like instability of the government leading to regulatory issues, social issues, marketing forms an important part in these projects as this is a onetime investment and the purchase cycle is long , long development period makes the same project be at different points in the real estate value cycle. This paper leads to an analysis part of risk management on the basis of several analysis techniques, checklists, risk register, expert view etc. Qualitative & Quantitative assessment is carried out for risk involved in project. This study is useful for analyzing large scale real estate projects in Maharashtra; also suggest mitigation steps for different categories of risks.

## **I. INTRODUCTION**

The term real estate stands as land, including the air above and the ground below it and any buildings or structures on it. It is also referred to as reality. It covers residential housing, commercial offices trading spaces such as theatres, hotels and restaurants, retail outlets, industrial buildings such as factories and government buildings. Real estate involves the purchase, sale, and development of land, both residential and non-residential buildings. The main players in real estate market are the landlords, developers, builders, real estate agents, tenants, buyers, etc. the activities of real estate sector encompasses the housing and construction sector. A risk can be defined as exposure to the possibility of economic and financial loss or gain, physical damages or injury, or delay as a consequence of the uncertainties associated with pursuing a particular course of action. Risk can also be defined as coalescence of all the uncertain factors which will have a combined negative effect on the objectives of the project. Large scaled real estate projects can be defined as the projects which are large scale, ranging from integrated townships to large commercial developments, IT Parks and SEZ projects with project duration varying from 3 to 20 years. Government of India recognizes that knowledge based activities will be the economic drivers in the future. This includes IT and IT Enabled services such as Knowledge Process Outsourcing and Business Process Outsourcing. It also includes emerging technology areas such as Biotech, energy related research, financial services, contract research and host of such other activities. Knowledge based industries require high end commercial and residential built environment along with high quality infrastructure. Since these sectors are manned by the younger population, availability of good quality health services, educational institutions and modern entertainment facilities will drive such development. Project encounter risks at every phase of project. Stakeholders involve in projects are facing following risks.

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## II. LITERATURE SURVEY

**Wenzhe Tang, David M.Young in [1]** "Risk Management in the Chinese Construction Industry" studied the empirical Chinese industry survey on the importance of project risks, application of risk management techniques, status of the risk management system, and the barriers to risk management, which were perceived by the main project participants. The study reveals that: Most project risks are commonly of concern to project participants; the industry has shifted from risk transfer to risk reduction.

**Dr. R. K. Kansal, Manoj Sharma in [2]** "Risk Analysis and Management in Construction" studied the construction industry perception of risk associated with its activities and the extent to which the industry uses risk analysis and management techniques with the help of a questionnaire survey of general contractors and project managers. The author concluded that risk management is essential to construction activities in minimizing losses and enhancing profitability. Construction risk is generally perceived as events that influence project objectives of cost, time and quality.

**Dr. Mohammad Nayfeh in [3] proposed** "Risk management of the construction stage for the construction projects in Syria" discussed the attitude of large U.S construction firms toward and determined how the contractors conduct construction risk management through a survey of the top 100 contractors. The study showed that in the recent years contractors are more willing to assume risks that accompany actual and legal problem in the form of risk sharing with the owner.

**Matins Claudia Garrido and et. Al. in [4] proposed** "Risk Identification Techniques Knowledge and Application in the Brazilian Construction" studied the risk that Singapore architecture, engineering and construction (AEC) firms face when working in India and investigated the risk response techniques adopted by them. The risk response techniques include having adequate insurances and careful planning and management.

**Cheng Siew Goh and Hamzah Abdul-Rahman1 [5]** " The Identification and Management of Major Risks in the Malaysian Construction Industry" This study helps to make the risk factors involved in construction during and after the construction about the resource allocation, procurement, inventory control. And to minimize the time, cost and increase in quality of construction by analyzing the risk during planning itself.

**A. Sotoodeh Gohar1, M. Khanzadi, Maryam Farmani [6]** "Identifying and Evaluating Risks of Construction Projects in Fuzzy Environment" suggested that consistent methodology for construction project risk management. The construction industry consistently suffers from poor project performance due to a lack of formalized risk management procedures which helps to facilitate more effective risk management while allowing all project participants to develop and share a great understanding of project risk for improved performance.

**Kendrick, T. [7]** " Identifying and Managing Project Risk: Essential Tools for Failure-Proofing Your Project" suggested that a description of systematic way to consider and quantify uncertainty in construction schedules. Construction projects are initiated in complex and dynamic environments resulting in circumstances of high uncertainty and risk, which are demanding time constrains.

**In [8] proposed** the idea of Guide of project management by Project Management Institute. They reviewed techniques that can be used for development of risk management tools for engineering projects. Techniques for context establishment, risk identification, risk assessment and treatment were provided. Application of risk management tools depends on the nature of the project, organization's policy, project management strategy, risk attitude of the project team members, and availability of the resources.

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## III. BACKGROUND OVERVIEW OF RISK ANALYSIS

### The Concept of Risk

It is generally acknowledged that every project, particularly construction, have inherent risk associated with it. What in essence does “risk” mean? It is only when the concept is understood that it would relate more meaning in the examination of the construction industry’s approach to the issue of risk management, which have now turn to be wholly specialized subject. Efficient achievements of project objectives are some of the underlying benefits of risk management. Baker et al. (1999) asserts that with adequate assistance of risk management, two essential advantages will be captured, more confidence can be given to the estimated project cost and profits will be maximized.

### Definition of Risk

There are undoubtedly, various perspectives on the meaning of the word “risk” just like the concept itself. There are many scholars, professionals’ bodies, and standard institutes with various prospective towards the concept and definition of the term “risk”. This has made it difficult to come out with a single united definition of the term “risk”. However, despite the divergent perceptions, there is some essential elements in similarities with most of the definitions. Standard dictionaries have always connotes the term with negative and involves uncertainty. Bu-Qummaz (2007) submitted that the absence of consensus towards the definition of the term “risk” within the professional bodies and standard institutions is reflected in the presence of different phrases used to define risk in literature. Risk in relation to construction has been defined as an “exposure to economic loss or gain from involvement in the construction process” and “a consideration in the process of the construction project whose variation results in an uncertainty in the final cost, duration and quality of the project” (Kartamand Kartam, 2001). Similarly, within the business circle, risk has been defined both as “lack of predictability about structure, outcomes, or consequences in a planning and decision situation” and “the probability of occurrence of some uncertain, unpredictable and even undesirable event(s) that would chance the prospects for the profitability on a given investment.

### General types of risks

Risks can be viewed as business, technical, or operational. A technical risk is the inability to build the product that will satisfy requirements. An operational risk is the inability of the customer to work with core team members. Risks are either acceptable or unacceptable. An acceptable risk is one that negatively affects a task on the non-critical path. An unacceptable risk is one that negatively affects the critical path. Risks are either short or long term. A short-term risk has an immediate impact, such as changing the requirements for a deliverable. A long-term risk has an impact sometime in the distant future, such as releasing a product without adequate testing. Risks are members. Finally, risks are either internal or external. An internal risk is peculiar to a project, such as the inability to get the parts of a product to work. An external risk originates from outside the scope of the project, such as when senior management arbitrarily cuts funding by 20 percent.

**1) Delivery/operation risk:** The ability to overcome the risk of delivering and operating the project as conceived. This risk factor involves issues or concerns associated with actual engineering, procurement, construction execution, and operation of the project, including non-traditional approaches such as a public owner’s use of design-build contracts.

**2) Technology risk:** The ability to overcome the technological risks of the project. This risk factor involves issues or concerns associated with the technologies involved in the execution methods and operational technology of the project.

**3) Financial risk:** The ability to overcome the financial risk of the project through to final completion and operation. This risk factor involves issues or concerns associated with the financing of the project, including the execution period and operations or equity financing.

**4) Procurement-contractual risk:** The ability to overcome the risks associated with the procurement of, or contracting for, the execution and operation of the project. This risk factor involves issues or concerns associated with the contractual and procurement approaches-systems-processes used for both project execution and operation.

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- 5) Political risk:** The ability to overcome the political risk of the project, including local, state, and national political opposition and code and regulatory impediments. This risk factor involves issues or concerns associated with the local, regional, and national political and regulatory situation confronting the project.
- 6) Environmental risk:** The ability to overcome the environmental risks of the project. This risk factor involves issues or concerns associated with the environmental problems, concerns, and activities confronting the project during the project execution and the project operation.
- 7) Social risk:** The ability to overcome the social risks of the project. This risk factor involves issues or concerns associated with the social and cultural impacts of the project to the community and region within which it is to be located.
- 8) Economic risk:** The ability to overcome the economic impact risks of the project. This risk factor involves issues or concerns associated with the macroeconomic impact of the project to the community and region within which it is to be located.
- 9) Reserves risk:** an operations risk factor addresses the extent of reserves and contingency to be transported, and not only the anchor field, but also reserve risk associated with the prospects and discoveries in the area.
- 10) Credit risk:** a financial risk factor Customer credit risk is a new risk issue stemming from the large inflow of small capital independents and the formation of many Limited Liability Corporations without any real assets.
- 11) Engineering risk:** a technology risk factor: The exploration and production requirements are continuously pushing the deep water envelope. A large risk consideration is that the meteorological-ocean data current and waves is empirical and is changing with new measurement information becoming available every year.
- 12) Materials risks:** a procurement risk factor: The huge costs of projects are driving the search for the cheapest material that meets specifications which is to be fabricated in a location that has the least cost-often in different countries.
- 13) Weather risks:** an environmental risk factor: Wave currents (storm risks) are plaguing many off-shore projects, yet are increasingly uninsurable.
- 14) Insurance risks:** an economic risk factor: The global reinsurance market currently has severe capital restrictions that are restricting access to project insurance.
- 15) People risks:** social risk factor Changing social relationships and forced cultural changes of linear projects, like pipe- lines, are destabilizing local support and long term operability conditions.

### IV. CONCLUSION

As far as India is concerned risk management is still a new word in the construction sector and this should be changed as soon as possible. Currently the Government of India has proposed a risk rating system will help the developers to develop projects at a faster pace by taking quick decisions. Each rating agency will have its own methodology to rate projects. The system will help government to develop a strategy to mitigating risk. This will encourage more response from developers and investors for public-private partnerships projects. It could make the bidding projects more competitive. The system will enable bankers to take quick decisions for lending finances, which could lead to the financial closure of the project at a faster pace. Third party risk rating would certainly raise critical points, which are not normally raised during finalisation of project. This study should assist management in identifying activities where there is a risk of Financial, Time and Construction aspects and hence provide a basis for management to take objective decisions on the reduction of risk to an agreed level. These findings are very important for implementing further effective measures to ensure the right direction of future development. Risk management should be considered a primary tool to assess the project. Data collected was subjected to 5-scale Impact Grid with Scores of Risk. Those scores were the used to determine difference in perceived risks of, General Manager, Project managers, Project Engineers and Site Engineers which was then analyzed by using the software of SPSS. This will encourage more response from developers and investors for public-private partnerships projects. It could make the bidding projects more competitive. The system will enable bankers to take quick decisions for lending finances, which could lead to the financial closure of the project at a faster pace. Third party risk rating would certainly raise critical points, which are not normally raised during finalisation of project.

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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 Lithuanian 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. Qualitative methods of risk assessment are used in construction companies most frequently, ahead of quantitative methods. In construction project risk management, risks may be compared by placing them on a matrix of risk impact against a probability. Mitigation options are then derived from predefined limits to ensure the risk tolerance and appetite of the construction company. The risk management framework for construction projects can be improved by combining qualitative and quantitative methodologies to risk analysis.

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