

## **Classifying Risk in Fast Track Construction Projects in India**

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*Abstract-Risk is a common element in all industries, whether it is IT related business, automobile or pharmaceutical industry, or the construction sector but fast track construction projects are more prone to risk. The objective of the present paper therefore is to identify the types of risks associated with fast track projects in India. Extensive literature survey has been done to collect the information regarding the types of risks in the construction projects. It has been found that risk has been categorized external and internal broadly. Apart from it multiple other risk types are Physical, Environmental, design, Financial, Contractual / legal, Construction, Political, Management, Natural hazards, Safety and Delay risk. It is expected that practitioners applying the findings and suggestions of the present research will be able to take precautionary measures ultimately leading to greater competitive advantage.*

**Key word:** Risk, Construction, Fast track, Projects, Management

### **I. INTRODUCTION**

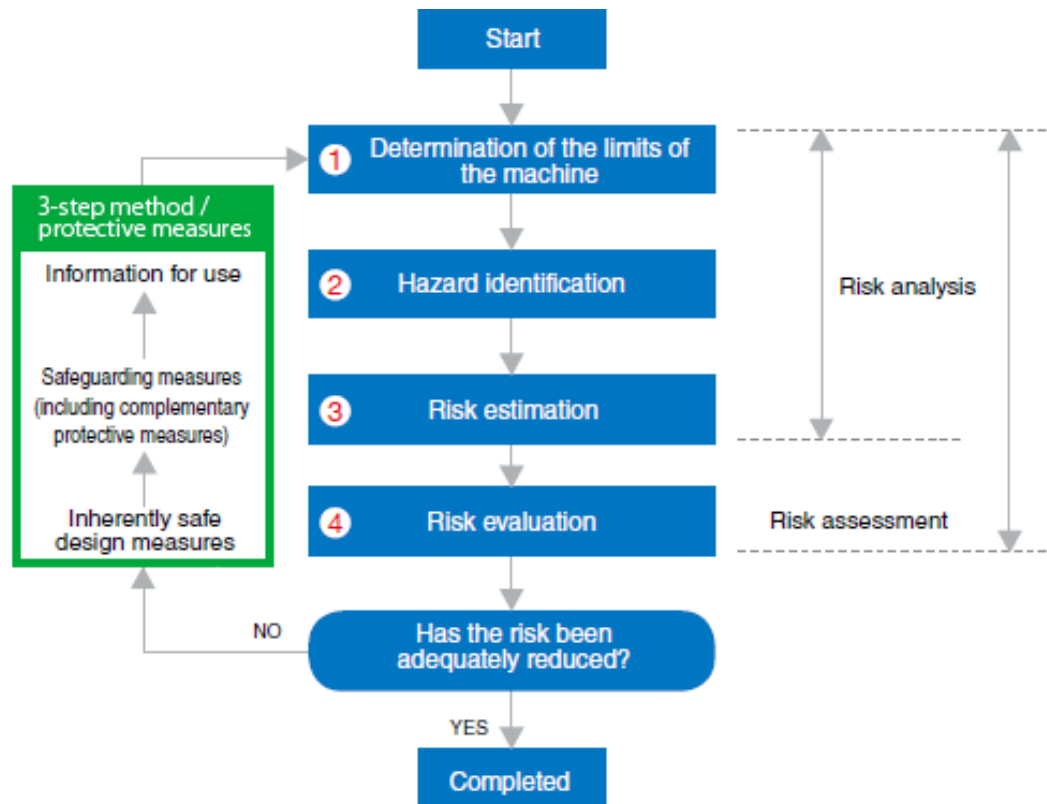
Current time in India, two of its key sectors - Infrastructure and Real Estate - are crying out loud for attention and freedom to shift to higher gears. Marred by decades of indifference leading to delayed implementation of key roads, ports, rails and housing projects. While the creation of world-class network of roads, ports, airports, bridges, tunnels among others lies solely in the hands of the Central and State Governments, creation of housing projects for masses, regulation of the housing and commercial real estate developments has been torn between the central government, the state government and the developer and builder community. Corruption, red-tapism, un-holy nexus among stakeholders and absence of will to actualize existing and new regulation has disgraced the land division specifically. Generally observed as a goal for hoarders of dark cash or as a simple means for changing over any black money, the land segment is catching to settle the essential issue of convenient conveyance of activities, substantial stock of unsold/incomplete housing unit's shopping centres and business edifices.

Time-bound completion of infrastructure projects is perhaps the single biggest challenge from which India needs to be freed. Take for example the roads sector. India has the second largest road network across the world at 4.7 million km that is used to transport more than 60 per cent of all goods in the country and 85 per cent of India's total passenger traffic. Rapid urbanization coupled with growing sales of automobiles and movement of freight by roads is forcing the authorities to create an adequate road network to cater to the increased traffic and movement of goods. While the construction of highways reached 8,142 km during FY 2016-17, with an all-time high average pace of 22.3 km per day, much more needs to be done in quick time.

Risk is concomitant to any project irrespective of industry and thus risk management should be of interest to any project manager. Gould and Joyce, 2002 states that each project is unique and hence risks differs from one project to another. Smith et al. 2006 says that still a number of project managers do not understand the significance of applying risk management process. Despite the fact that there is a consciousness of risk and their results, a few associations don't approach them with RM techniques. Sanvido et al., 1992 found that construction industry which has a number of complexity hence functions in a very unreliable environment. Risk management in such cases can assist and can be beneficial to the project as the ultimate objective of each project is to be successful. It ought to be emphasized that risk management isn't an apparatus which guarantees achievement but instead a device which builds the likelihood of making progress. Risk management is accordingly a proactive as opposed to a receptive idea.

## II. RISK MANAGEMENT

Risk is characterized as vulnerability of result which can be either positive or negative. The control and regulation of risk is basic to extend achievement and it is the undertaking of risk management to deal with a task's presentation to risk. In construction industry, Risk management is intended to plan, screen and control those measures expected to avert exposure to risk. To do this it is important to recognize the peril, evaluate the degree of the risk, give measures to control the risk and deal with any leftover dangers. According to the Project Management Institute (PMI) (2004), project risk management is one of the nine most critical parts of project commissioning.



*Fig. 1 Risk assessment process established by ISO 12100.*

## III. LITERATURE REVIEW

To assess the risk, classification of risk constitute one very significant aspect. Numerous attempts have been made to structure the risk which can have bearings on the successful completion of projects. Risk from the contractor perspective was the objective when Perry and Hayes (1985) tried to classify the risk. He came up with three groups namely finance for construction, time of construction, and the design of construction. While discovering the factors responsible for project delay Shen (1997) found such eight major risks. In yet another work in the year of 2001 Shen (2001) categorized the risks into six groups after analyzing the nature of the risk. Similar categorization is being done in the work of Chapman (2001) and he classified it into four groups i.e. environment, industry, client and the project. Abdou (1996) classified Risks in construction in different ways. While categorizing the risks involved in any project as external as well as internal Tah et al. (1993) developed a model to assess the risk from the contractors viewpoint at the tender stage. They mentioned certain factors like inflation, fluctuation in the currency rates, technological changes, politics, climate changes, weather condition and natural disasters as the external environment as they are not in the control of the organisations dealing the project. As this in not ion the control , the company needs to keep a constant watch on the external element . On the other hand the internal environment are those on which organisations use to have control like that of human resource, material, site condition, plant. Similarly a number of scholars have worked on to find the types of risk in construction projects like Act of God, Environmental, legal, Political, etc. (Mustafa, 1991; Wiguna and scott, 2005; Enshasi and mosa, 2008; Razakhani, 2012; Goh et al., 2013).

#### **IV. RISK IDENTIFICATION**

Acts of God Risks; Events which are not in the control of human beings are widely known as act of God. There is always a risk because of this kind of event as for example risk associated with earth quake, floods, cloud burst, landslides etc.

Delivery/operation risk: This risk factor involves issues connected with construction execution, actual engineering, operation of the project, procurement, including non-traditional approaches such as a public owner's use of design-build contracts.

- Weather risks: These are risk that is directly associated with uncertainties of weather.
- Insurance risks: The global insurance market currently has severe capital limits that are limiting right of entry to project insurance.
- Financial risk: This risk factor involves issues or concerns associated with the financing of the project, including the execution period and operations or equity financing.
- Physical Risks: This type of risk is concerned with a case when contractor's property get damaged. As for example during the work the equipment of contractor stopped functioning, injury or death of worker, someone stops the work to happen, or the property gets damaged.
- Technological risk: This factor includes issues or concerns related with the advancements engaged with the execution techniques and operational innovation of the task.
- Design Risks: These types of risk is associated with faulty design, ambiguity in plans, inaccuracy of geological and geotechnical exploration, and interaction of design with methods of construction.
- Procurement-contractual risk: This risk factor involves issues or concerns associated with the contractual and procurement approaches-systems-processes used for both project execution and operation.
- Job Site-related risks: The following are potential risks that are considered typical in every construction project: availability and productivity of labor; soil, site and other changed conditions; material shortages and quality.
- Political risk: This factor includes issues related with the nearby, local, and national political and administrative circumstance going up against the venture.
- Social risk: 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.
- Reserves risk: This involves 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.
- Economic risk: This includes issues related with the macroeconomic effect of the undertaking to the network and area inside which it is to be found.
- Credit risk: It is another risk originating from the expansive inflow of little capital independents and the arrangement of numerous Limited Liability Corporations with no genuine resources.
- Materials risks: The colossal expenses of tasks are driving the search for the least expensive material that meets particulars which is to be created in an area that has the slightest cost-frequently in various nations.
- People risks: Changing social relationships and forced cultural changes of linear projects, like pipe- lines, are destabilizing local support and long term operability conditions.

#### **V. CONCLUSION**

To have an effective risk management plan, at first step the key risk factors which have the most effect on project objectives should be identified and classified. This paper is an investigation towards classification of different risks which may be involved in construction projects. The review suggested various types of risk as for example act of god, people risks, credit risk, reserves risk, political risk etc. This classification can be used as a guide to identify the potential risks in a project.

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