Risk Management in Construction Projects

Seyed Hossein Abedian Kalkhoran[1]

Gholamali Liravi[2]

Fereshte Rezagholi[3]

[1] *Me Civil (C & M) Student, Mit College, University Of Pune, Pune, India,*[1] *Me Civil (C & M) Student, Mit College, University Of Pune, Pune, India*
[1] *M.Arch (Sustainable Architecture) Student, Bharati Vidyapeeth University, Pune, India*

ABSTRACT

Risk is involved in every business and construction industry is no exception. Risk in terms of safety, economy and timely completion are more crucial for a project to be a successful one. Indian construction industry is worth about $100 billion and this could grow considerably driven by major projects across the country. The demand for infrastructure is going to be in great volume in the coming future. Use of modern construction equipments and techniques has accelerated the growth. As the industry grows the associated risk also grows. Risk management in construction is one important area that needs attention for successful completion of the project.

A risk free project is one that results in a zero dispute situation so that there is a reasonable profit for the parties involved in a project. A well-drafted, balanced contract with a proper administration can mitigate exposure to risk and keep the project on track. Construction Managers need to know how to balance the contingencies of risk with their specific contractual, financial and organizational requirements. In order to achieve this balance, proper Risk identification and Risk analysis is required.

The objective of the paper is to study the aspects that are more vital for the success of the project and highlight those pitfalls that increase the risk of the project. It is also attempted to arrive at some suggestions by referring to various cases and their judgments delivered in the past.

KEYWORDS

Risk management, contract, construction, strategy

INTRODUCTION

1. CONTRACTUAL RISK MANAGEMENT

The risk in contractual work involves the possibility of gain or loss that may occur during the course of a project. In determining contract strategy, both the parties should strive to understand and recognize each other's responsibility.Construction contracts inherently contain many risks that must be assigned in a manner that maximize the probability of successful project completion.In general construction contracts do not directly apportion risk, but deal with risk by defining contractual obligations subject to exceptions. The exceptions are based on the specific

risk. Thus by way of example, a contractor will normally be liable for failure to complete by the specified date, unless an event occurs which entitles him to an extension of time.

The Construction Risk area includes

- Construction Risks & Exposures
- Construction Defect Mitigation
- Construction Quality Problem Areas
- Claims & Litigation,

Risk Management Strategies

- Risk Transfer
- Risk Financing.
- Understanding the legal system

The effectiveness of any arrangement will depend upon whether it is enforceable in the courts and whether the decisions of the courts are based on policy considerations and prevailing judicial attitudes. Therefore it is not just the Engineering but inter-relationship of Engineering and legal solutions that should be given due consideration for eliminating risk out of the project.

2. METHODLOGY:

Basically there is no law that is available exclusively for construction industry.

Therefore it becomes much more important to have a methodology which can minimize risk of all parties involved. No project can be called totally risk free. However considerable amount of risk can be minimized by carefully drafting the contract document. Emphasis here should be given not only in drafting but also implementing it effectively. The role of a contract administrator is more vital for achieving risk free situation.

A study of existing system indicates that the projects are open to wide spectrum of risk. i.e. risk in terms of defaulting in timely completion, in terms of cost over run and time over run. It is also seen that the exposure to risk and subsequent disputes result in projects getting aborted wasting time and money spent on that project. The methodology of risk management can be achieved by studying shortcomings in contract document & finding out the legal aspects related to risk.

The methodology should be arrived at by identifying those areas which affect the performance of the projects to a great extent. Specific standards should be arrived at for specifying quality and to what extent quality variation shall be accepted should also be decided while awarding the contract. The contractor should also be provided with detailed drawings, specifications and schedule of supply of material.

Incase of delays the contract should have a provision of issuing notice to the contractor to give him reasonable opportunity to accelerate the progress of the work.

Therefore Risk Management requires

- Identification of the particular risks
- Examination of the engineering and legal responses to allow the risk

2.1. STUDY OF SHORTCOMINGS IN CONTRACT DOCUMENT

The following are some of the shortcomings from the point of view of designing of contract.

- Methodology of invitation of tender
- Award of contract based on lowest bid is given prime importance
- Absence of proper homework
- Absence of contract administrator
- Defective contract document-unreasonable or one sided.

2.2 ABSENCE OF LAW RELATED TO CONSTRUCTION

The study also attempts to find out

- The laws that that are required with respect to construction
- Court judgments with respect to construction industry
- Trade practice & technical approach which is to a great extent missing
- Implications of risk in a project through research study & personal interviews.

2.3. METHODOLOGY FOR A CONTRACTOR TO REDUCE RISK:

At the tendering stage a contractor must identify the risks and assess them in order that he may adopt the appropriate pricing strategy. In addition he will need to identify risks that have not been expressly identified in the contract documentation and judge whether he will be considered legally to carry the risks.

Such an appreciation is vital since it will affect the pricing strategy necessary to win the bid against the competitors who may be oblivious to any such risk apportionment. The competitive bid/lowest price method of appointing contractors inevitably rewards risk takers, but does not always lead to the lowest out-turn costs.

2.4. METHODOLOGY FOR OWNER/CLIENT TO REDUCE RISK:

Although the owners are well advised when assessing bids to discount bids which clearly have not priced certain risks, the reality is that he will not do so. The lowest bid will win simply because it is based on an over optimistic view of the project.

Experience shows that this leads inevitably to costly disputes and can have a disastrous consequence on the completion of the project.

The client should receive pre-construction services such as schedule, budget, and constructability reviews. During pre-construction, specialists should review building systems, material selections, and site work to ensure that the client is getting the best value.

2.5. RISK CAN BE SOLD!

The cost of risk is saleable. The insurance industry is based on this principle. The sale of risk normally increases costs.

2.6. RISK MANAGEMENT TOOLS

Risk Management deals with change, so that any tools can only be a guide or checklist or prompt list which must continuously be re-examined and refined. It is important that risk management is adopted throughout the project life cycle to allow review of the procedures in the light of experience.

2.7. RISK MANAGEMENT TEAM

The Risk Management Team must function as a team in which there is trust and respect. Each member should have the ability to carry out the project or a significant part of it.

- Technical issues on the project;
- Commercial issues on the project;
- Risk management techniques.

2.8. RISKTRANSFER & INDEMNIFICATION

Indemnification can be viewed from the perspective of worker safety and avoidance of accidents, with an emphasis on the exculpatory aspects of indemnification.

Problems with indemnification provisions can occur, for example, if a prime contractor removes the indemnification provision from all of its subcontract agreements. This minimizes the prime contractor's responsibility, and could minimize the incentive for the prime contractor to properly control project operations. This could also increase the potential for injuries to workers at the project jobsite.

3. RISK RELATED TO PARTIES EXECUTING CONTRACT

It is observed in general that in any construction project the risk of the owners is 10% of the time, the risk of contractors is 50% of the time and both the parties are at risk for 40% time duration of the project.

It is also important to mention that the perception of risk assessment varies with respect to parties. In other words the same clause is viewed differently by parties involved in the contract.

Owner's and contractor's views of Risk for several interesting case cases.

	ITEM	**Owner's view**	**contractor's view**	**Allotted to**
1	Scope of work	31% **15%** 54%	0% **67%** 33%	Owner Contractor Both
2	Cost control	30% 20% 50%	14% 57% 29%	Owner Contractor Both
3	Construction equipment warranty	11% **61%** 28%	23% **33%** 44%	Owner Contractor Both
4	Subsurface	25%	43%	Owner

	investigation	42% 33%	0% 57%	Contractor Both
5	Force Majeure	17% 11% 72%	43% 0% 57%	Owner Contractor Both
6	Redesign	23% **23%** 54%	0% **80%** 20%	Owner Contractor Both

TABLE 1:(Owner's and contractor's views of Risk for several interesting case cases. Ref: Law Reporter Part-4 Volume-II Journal section by Mr.M.S.Billore)

The highlighted items show that the owner views the risk being allotted to him 15% of the times while the contractor feels that he is assigned this risk 67% of the time when it comes to scope of the project. Such disparities in interpretation cause misunderstanding, disagreement and finally lead to disputes.

4. CASE STUDIE:

BHARAT CONSTRUCTION CO. VS STATE OF M.P.

PRESENT: Hon'ble Mr.A.V.S.Chowdhury

Hon'ble Mr.M.S.Billore

Bharat Construction Co. entered into a contract with State of M.P to construct earth dam in river portion of Dejla Dewda project .It was an Item rate contract to be completed in a period of 15 months.

ITEM	**Owner's** **view**	**contractor's** **view**	**Allotted to**
Scope of work	31% **15%** 54%	0% **67%** 33%	Owner Contractor Both

- It was claimed by the contractor that it is an extra item whereas the other party counter claims that it is not extra but is integral part of the contract.
- It was held that the claim shall be allowed.
- Providing and laying earthwork in cut-off-trench including all leads and lifts, spreading, breaking clods, laying, picking and removing roots etc EXCLUDING WATERING AND COMPACTION.

5. RISK MANAGEMENT STRATEGY

The parties to contract should understand that **RISK MANAGEMENT** is not the responsibility of one party but the combined effort of all those involved. Each one should know the quantum of risk they are exposed to and prepare themselves for the risk. Risk is to be **redirected or avoided or transferred** to a particular project participant is a question that needs to be answered.

The general approach to an identified risk is to decide:

- **whether to take up the risk; or**
- **to mitigate the risk; or**
- **to apportion the risk; or**
- **to transfer the risk to another participant;**

When a project involves state-of-the-art or unusual structures or unusual locations in under-developed countries, then this lack of experience of risk management can itself create serious risks to the engineering of the project. This is accentuated by the increasing use of analytical and design software, a structured approach to the identification of risks is again appropriate. Engineers whether acting directly for Owners or for Contractors should be encouraged to prepare the design methodology identifying the risks and uncertainties and the data on which the design criteria is based.

Litigation never gives adequate compensations for a project that has been unsuccessful. It is always best to **examine carefully the options for reducing the risk than rely on the doubtful compensation of litigation if the assessment proves inaccurate.**

6. SUGGESTIONS:

- Reasonable stipulated period of contract should be provided keeping in view of locations and local factors.
- Drafting of technical specification for the construction work should be so made that there is no scope for ambiguity or very high standard of specification which tend to be too theoretical and are not achieved even after the whole hearted efforts because of particular quality of construction materials at work site. For example insisting on use of river sand for any construction work in Mumbai.
- Once entered into the contract both the parties should see that they work within the scope provided in the documents & mutually agreed upon.
- All correspondence between parties from the date of entering into the contract shall be kept safely as they become important evidence in case of disputes.
- Incase of nonconformance of contract clauses a prior notice or warning shall be given. Sudden termination of contract without a prior and proper notice may put not only the parties but also the project into risk.
- Contract reviews and insurance facilitation are critical components on an effective risk mitigation and management program. Insurance facilitation assumes the probability that accidents will occur and seeks an efficient way of distributing and/or transferring the risk.

7. CONCLUSION:

Risk Management, therefore, requires first an identification of the particular risks and secondly an examination of the engineering and legal responses to allow the risk to be redirected or avoided or transferred to a particular project participant.

It is essential to carry out review at the end of each phase of work or project, which identifies those risk events which have occurred. This will allow prompt lists and risk registers to be updated and fine tune the company's risk

management procedures. Use of contractual risk transfer methods, utilizing indemnification provisions or combination of insurance, risk financing, and contract indemnification provisions can keep risk exposure under control.

Complete & clear bid documents in terms of information, Pre-bid meetings, fair and competitive bid process & analyzing the results of all bids for review and final selection, proper insurance, mutual respect accompanied by a close monitoring will mitigate risk of not only the parties but also the project.

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