

# METHOD OF RISK REGISTER AND RISK IMPLEMENTATION FACTORS IN THE HYDERABAD METRO PROJECT

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**Abstract:** Project management is considered as a kind of science and that consists of a development dynamically held particularly in the 20th century. The risk register is considered to be a very important parameter in the project management and when the proper analysis of the risk register is carried out then there can be the bigger chances of the success of the project. The risk register is important for the analysis in the project research work as well as the development of the company has been considered. Please consider that the initial stage involved in the risk register and the methodology involved in it is to first of all define the expectations related to the registers of the risk and also the practice currently involved in the register of the risk apart from this the perceptions can also be analysed so that the capabilities can be known related to the risk register. The aim of the present work is for the proper examination of the risk register in the Hyderabad metro project so that the correlations between the different factors is obtained. There are different factors involved in the risk register as per the present work and that consist of delays in land acquisition planning third party liability risk regulatory administrative and approval delays design risk construction dress change in scope financial risk technology risk operation and maintenance market means performance raise force majeure political and social risk safety environment risk legal risk and interface risk.

**Keywords:** risk register, project, risk management and Hyderabad Metro project

## **1. Introduction**

Risk management is considered to be a concept which has been used in almost all the industries like IT sector, automobile industry, pharmaceutical industry and even in the sector of construction. Every industry carries out the own research related to the development of risk management but the concept and the general thinking is considered to be the same in almost all the sectors related to risk and its management [1]. The management of the risk in the project is considered to be one of the critical factors when the project must be finalized or it is to be commissioned. There is a very strong relationship in between the risk management as

well as success of the project. Risk management is considered to be the critical as well as a difficult part in the management of the construction while its application of the risk management needs to have the promotion in every aspect of the project so that there will not be any kind of consequences [2].

There is one of the concepts called process of risk management and it is considered mostly e e used related to the management of the risk [3]. This process involves majorly for steps that is assessment of the risk identification of the risk action based upon the risk and the process of monitoring for the risk. All these four processes involve different kinds of methods as well as the technique involved in it and that is very important for the management of the risk and handling process [4].

## **2. Literature Review**

There are different kinds of industries which have been initiating the process of management in the risk and how to analyses the risk factors involved in the project are also being considered. Where is the path related to the time when the management of the risk is to be considered and it can be seen in almost all the industries [5]. When the consideration is about the industry of construction then the management of the risk is the part which has not been used in many industries. Nowadays different kinds of construction sectors are getting involved in the management of the risk and its process but it is considered that and found that the techniques involved in it and models related to the risk management are not considered by the industry [6]. And this kind of procedure will have certain contradiction involved in the process of industry as industry is mostly related to the following of efficiency in the time and efficiency in the cost and considered to have the controlling factors involved in it [7]. The project manager of any kind of industry should look at the concept of managing the risk since it is considered to be very important factor in the process of the project and to have more success [8]. Every kind of project is considered to have the unique features and their for the risk involved in that project is considered to be different for every project and in the construction industry this factor involved. It is found that from the research there are still different kind of industry we have not it identify the management

involved in the risk and importance of it when the process related to the project delivery and its success is involved. There is the knowledge of the risk management and the consequences involved in it but still some of the industry and the organizations are not following the process involved in the risk management.

It is observed that the construction sector is very e much associated with the process that are uncertain since the different kind of conditions have the different complexity and difficulties involved in it [9]. Every kind of industry want to be successful and for that the management of

the risk will play a major role. The process of the risk management is a kind of tool which will be helpful for the probability to have the chances of success [10].

The earlier research is carried out and it is observed that vendor risk management concept is to be considered then there are different kind of processes involved within this concept. A proper definition should be considered for the project so that everyone involved in the project should aware that and identified that kind of risk involved in that project [11]. For the forces of quantification in the case of management of the disc and identification of the author used for toolin which the chances and probability of getting involved in the risk have been rated on a particular scale. This tool is very important that the tracking process is properly carried out while the controlling in the case of risk and it is to be identified properly when the execution process is involved in the kind of project [12]. It is observed that from the study identification of the risk is very important as the consequences can be avoided in the project so that the project can have good performance as well as the success will be there. Author have carried out the study where it is observed that the identification and assessment of the risk involved in the initial phase in the case of a construction project is very important [13]. The management of the risk is a very important process and it is to be involved throughout the different phases of the project like planning phase or execution phase or control phase and the phase of closure [14]. Some of the study involved related to the execution failed as well as the planning phase where the risk management is considered to be very important part to be played while in the project [15].

### **3. PPP structure of the Hyderabadmetro project**

MMRDA awarded amount required for the construction is a case of 5 years and apart from this is the agreement related to the concession for BOOT in the case of amount which is required for 35 years. The agreement related to the concession is also involved that the operator involved in the project as to carry out the process involved in the finance sector construction operation and the process of maintenance related to the passage way which is primary and then the position can be transferred while isl assets need to be considered amount of conception.

Special purpose vehicle is also called as city railway line and it is named as one non-public restricted need to have connection with the Reliance energy having the equity share of 69%, Veolia transport company e have the equity share of 5% and MMRDA company have the equity share of 26%. The Hyderabadmetro project is considered to be very important project in the transportation system especially for the mass system of the transportation and it is very important operation in the Telangana. The Government of Telangana is closely monitoring as well as checking out the work of the project and have holdings of equity share of about 26% in this project or special purpose vehicle and have importance in the implementation process

involved in this project. Since there are holding in the equity share the government has nominated three members on the committee of the board for the case of special purpose vehicle so that the ensuring proper monitoring process and as well as Mowgli involvement in the finance sector and the construction sector for this project. The assets involved in the project considered descriptions of these vehicle breach required for communication deport for the transportation and other systems which is very important in the proper functioning of this special purpose vehicle. The total project cost for this case of special purpose vehicle is around 2300 crores which have Lee grant as per the Government of India is 470 crores and 180 crore from the Government of Telangana as well as viability grant total off 650 crore.

#### **4. Methodology**

##### 4.1 Risk register

Risk register in the project is considered to be a kind of tool and project manager usually take the help of this tool for tracing out as well as monitoring the kind of risk involved in the project and that may have the some effect on the project outcome. Risk management considered to be a very

Important parameter in terms of the management of the project and it is very important to carryout the analysis of the risk and solve this.

##### 4.2 Purpose of risk register

The purpose of the risk register in the case of management of the project is for the registration in terms of sporting wireless tracking and logging the risk involved in the project. Risk is considered to be the phenomenon that may have the adverse effect on the project as well as the success of the project.

##### 4.3 Need of risk register

There is a need of the risk register since it can be observed that the projects itself longer duration send the large capacity and that can big and complexities involved in it and may be difficult sometimes to complete the target within the deadlines and therefore it is very important to consider this and needed a proper risk register.

Risk which considered being a small and may not occurring and considering as the not much rate to the project but still it is very important to have consideration of it. Even though the reasons to be not likely to happen but still that may impact the the process of the project and that includes

- Risk in the data or risk in the security

- Risk in the legal issues
- Event like fire or flood or damage which is considered as catastrophic in nature
- Disruption in the supply chain

#### 4.4 How to create a risk register

For the creation of the risk register first of all it is very important to make a table that can have certain columns associated with it and need to start the process of population with the risk involved in the project. There are certain columns related to risk register which are mentioned as follows.

#### 4.5 Risk categories

It is very important to make the classes in the risk categories in the risk show that there can be very easy to watch it properly and need the follow up if they are going to impact on the project. It is very important to make it customised so that according to the business as well as the process of the project that may help.

#### 4.6 Probability and impact

For the measurement of the risk if there are two methods that is qualitative method as well as quantitative method and both may be helpful for the proper execution of the project.

#### 4.7 Rating

The methodology involved in the assessment of the risk is qualitative in nature in that case rating is very important and may get increased because of the impact of the risk. If there is a likelihood of the risk and it is high then it can be four, if the impact is medium then can be 3, accordingly the rating shall be considered as  $4 \times 3$  is equal to 12.

### 5. Results

As per the response obtained from the Google form, the following table shows the analysis for the risk register.

Table 1: Risk Register

Description	Probability	Impact	Rating
Delays in land Acquisition	4	5	20
Planning	1	2	2
Third party Liability risk	3	2	6

Regulatory, administrative & approval delays	2	1	2
Design Risk	3	3	9
Construction Risk	3	4	12
Change in Scope Risk	1	1	1
Financing Risk	2	4	8
Technology Risk	2	2	4
Operations & Maintenance Risk	3	4	12
Market Risk	4	4	16
Performance Risk	4	4	16
Force Majeure	1	2	2
Political and social risks	3	2	6
Safety Risk	2	3	6
Environment Risk	3	3	9
Legal Risk	1	3	3
Interface Risk	3	4	12

### Percentage Weightage

- i. Pre-Operative Risks
- ii. Construction Phase Risks
- iii. Operational Phase Risk
- iv. Other Risks

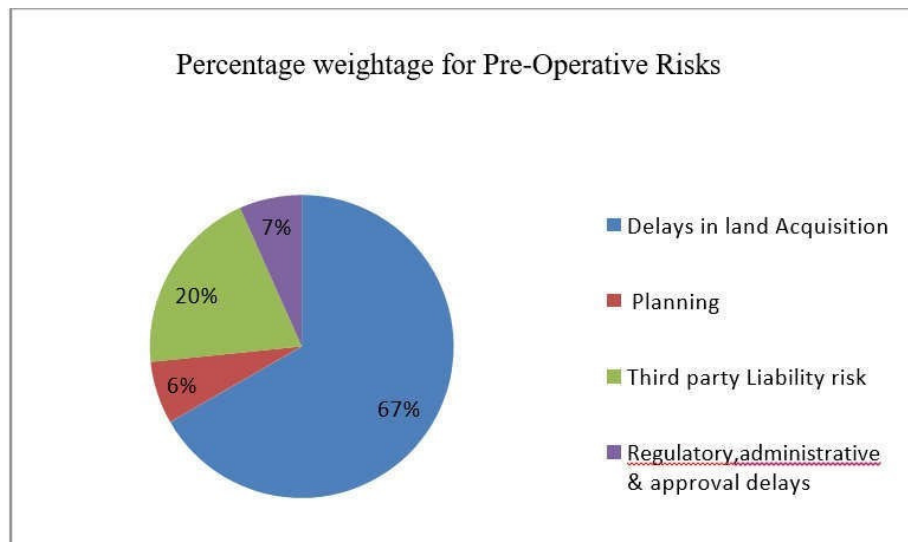


Fig.1: Chart for percentage weightage for pre-operative risk

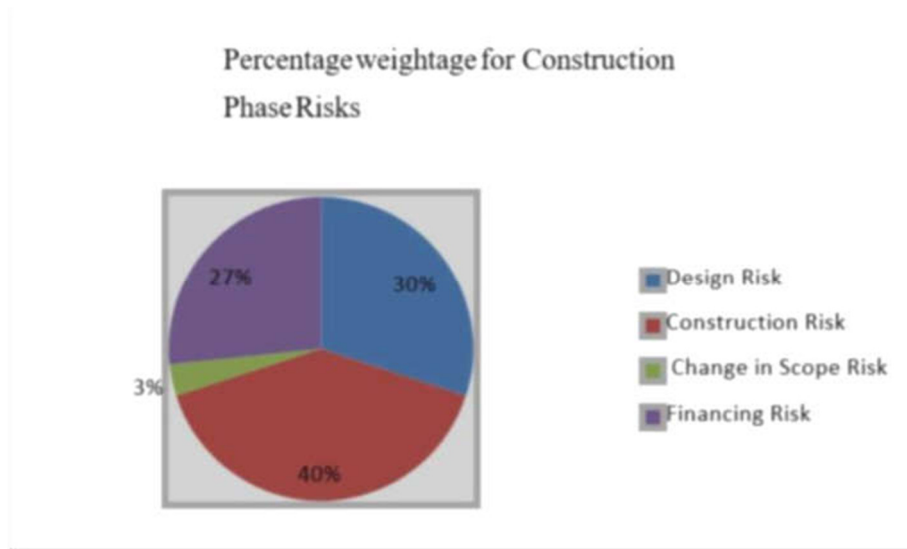


Fig.2: Chart for percentage weightage for Construction phase risk

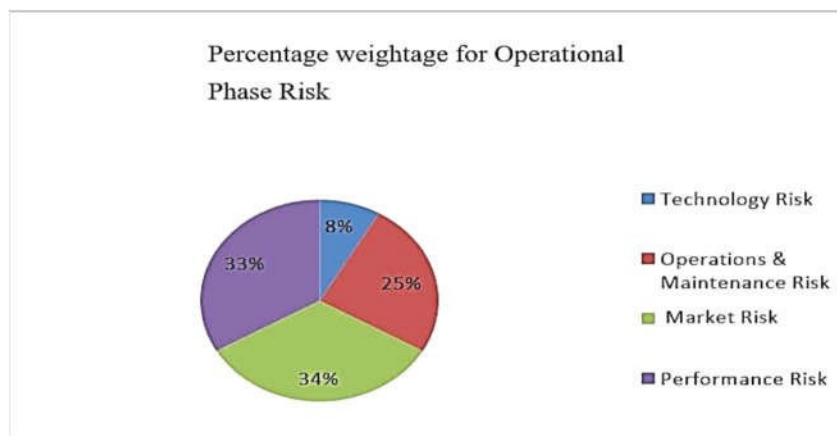
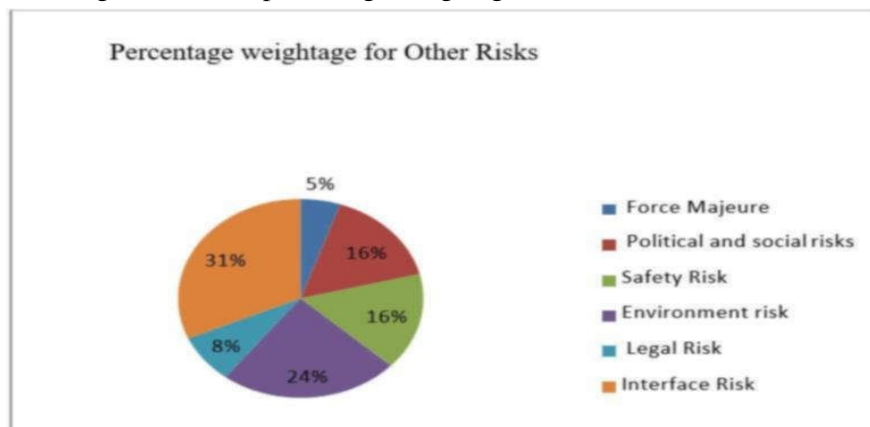


Fig.3: Chart for percentage weightage for Operational phase risk

Fig.4: Chart for percentage weightage for other risk



## 6. Conclusion

From the analysis it can be observed that if the management need to work properly and

effectively in that case the contract should carry out and observe the responsibilities related to the risk as well as the condition in the case of occurring of the risk of the preference which have been given to the risk and apart from that the capability is related to the management of the risk. There are certain pre-operative risks involved in Hyderabadmetro project while there are certain construction phase is involved in the project and apart from this operational phase risk are also involved. The categorization of the risks in terms of height is medium risk and load is have also been carried out in the present work ok so that the proper management of the risk can be carried out. Identification and analysis courses in the risk are very important so that mitigation of the risk shall be done.

## References

- [1]. Abd El-Karim, Mohamed Sayed Bassiony Ahmed, Omar Aly Mosa El Nawawy, and Ahmed Mohamed Abdel-Alim. "Identification and assessment of risk factors affecting construction projects." *HBRC journal* 13, no. 2 (2017): 202-216.
- [2]. Akintoye, Akintola S., and Malcolm J. MacLeod. "Risk analysis and management in construction." *International journal of project management* 15, no. 1 (1997): 31-38.
- [3]. Baloi, Daniel, and Andrew DF Price. "Modelling global risk factors affecting construction cost performance." *International journal of project management* 21, no. 4 (2003): 261-269.
- [4]. Choudhry, Rafiq M., Mohammad A. Aslam, Jimmie W. Hinze, and Faisal M. Arain. "Cost and schedule risk analysis of bridge construction in Pakistan: Establishing risk guidelines." *Journal of Construction Engineering and Management* 140, no. 7 (2014): 04014020.
- [5]. Han, Seung H., Du Y. Kim, Hyungkwan Kim, and Won-Suk Jang. "A web-based integrated system for international project risk management." *Automation in construction* 17, no. 3 (2008): 342-356.
- [6]. Kuchta, Dorota, and Ewa Ptasińska. "Fuzzy based risk register for construction project risk assessment." In *AIP Conference Proceedings*, vol. 1863, no. 1, p. 230006. AIP Publishing LLC, 2017.
- [7]. Lee, Eun Chang, Yongtae Park, and Jong Gye Shin. "Large engineering project risk management using a Bayesian belief network." *Expert Systems with Applications* 36, no. 3 (2009): 5880-5887.
- [8]. Nasirzadeh, Farnad, Mostafa Khanzadi, and Mahdi Rezaie. "Dynamic modeling of the quantitative risk allocation in construction projects." *International Journal of Project Management* 32, no. 3 (2014): 442-451.
- [9]. Olawale, Yakubu Adisa, and Ming Sun. "Cost and time control of construction projects: inhibiting factors and mitigating measures in practice." *Construction management and*



- economics 28, no. 5 (2010): 509-526.
- [10]. Sawacha, Edwin, Shamil Naoum, and Daniel Fong. "Factors affecting safety performance on construction sites." *International journal of project management* 17, no. 5 (1999): 309-315.
- [11]. Subramanyan, Hariharan, Priyadarshi H. Sawant, and Vandana Bhatt. "Construction project risk assessment: development of model based on investigation of opinion of construction project experts from India." *Journal of construction engineering and management* 138, no. 3 (2012): 409-421.
- [12]. Taroun, Abdulmaten. "Towards a better modelling and assessment of construction risk: Insights from a literature review." *International journal of Project management* 32, no. 1 (2014): 101-115.
- [13]. Thevendran, Vicknayson, and M. J. Mawdesley. "Perception of human risk factors in construction projects: an exploratory study." *International journal of project management* 22, no. 2 (2004): 131-137.
- [14]. Uzulāns, Juris. "Project Risk Register Analysis Based on the Theoretical Analysis of Project Management Notion of Risk." *Economics & Business* 29, no. 1 (2016).
- [15]. Wang, Jiayuan, and Hongping Yuan. "Factors affecting contractors' risk attitudes in construction projects: Case study from China." *International Journal of Project Management* 29, no. 2 (2011): 209-219.