



## A CRITICAL STUDY ON COST ESCALATION IN CONSTRUCTION INDUSTRY

S.Kanchana <sup>\*1</sup>, Anumol Sukumaran <sup>2</sup>

<sup>\*1</sup> Associate Professor, Civil Engineering, RVS Technical Campus - Coimbatore, India

<sup>2</sup> PG Student, Civil Engineering, RVS Technical Campus - Coimbatore, India



### Abstract:

*Cost escalation refers to the changes occurring in cost of specific materials services in a given economy over a period of time. Construction industry is a most complicated and dynamic industry which is constantly facing uncertainties. The various factors that cause escalation in construction industry are studied and discussed in the article. The ideas suggested by researches were also analyzed and reported cost escalation can be minimized to a greater extent by carefully adopting the remedial measure.*

**Keywords:** *Cost Overrun; Managerial Skills; Labour Cost; Material Cost; Contractor Performance.*

**Cite This Article:** S.Kanchana, and Anumol Sukumaran. (2018). "A CRITICAL STUDY ON COST ESCALATION IN CONSTRUCTION INDUSTRY." *International Journal of Engineering Technologies and Management Research*, 5(2), 194-197. DOI: <https://doi.org/10.29121/ijetmr.v5.i2.2018.163>.

### 1. Introduction

The Indian construction industry is the second largest industry and accounts to about 1% of GDP. The time taken for completion of a construction project varies from several months to several years. Through the project progression labour and material costs may find hike. This leads to a vast gap between the estimated cost and actual implementation cost called the cost escalation. In order to reduce this gap, provisions are made in the estimated cost based on many factors.

Cost escalation is defined as changes in the cost of specific goods or services in a given economy during the execution of a project. It is important to study and understand the various aspects and concepts related to cost escalation so that new remedial measures can be proposed to reduce the escalation. Cost overrun and cost escalation are part and parcel of construction projects. At international level, very few scientific and systematic studies have been carried out on cost escalation in construction projects. Hence this article is intended on identification and evaluation of various factors affecting cost escalation in construction projects.

## **2. Driving Forces Behind Cost Escalation**

Effective measurement and management of cost escalation initially necessitates thorough understanding of the driving forces behind it. Cost escalation occurs when actual costs exceed previously estimated values. The estimated price in most cases is the bid price by the contractor which may not be correct always due to fluctuations in the material and labour costs. The most important factor is that construction must be viewed as a commodity in itself, not a collection of commodities. Cost escalation comes from the combination of real or anticipated changes, input costs, perception of risk and perception of competition.

## **3. Need for Study in the Area**

Construction projects entail high risk, long gestation period, high costs and budget constraints. India is the second most populous country in the world with over one billion people accounting for around 16% of the world's population. The urban population is likely to increase to 40% by 2030. Hence adequate building infrastructure facilities are required at reasonable cost. In India, the performance record of successful implementation of infrastructure projects has not been encouraging. Cost overrun and cost escalation are part and parcel of the construction projects. New remedial measures can be proposed only after gaining thorough knowledge on various aspects related to cost escalation. Identification of various factors that cause escalation is the need of the hour and hence this study focuses on cost escalation, its causes and remedial measures.

## **4. Studies on Cost Escalation**

A construction project usually requires a multitude of people with different skills and interests and the co-ordination of a wide range of disparate, interrelated activities. Because of its complexity, construction projects particularly are subject to cost escalation than any other business activity.

In a study conducted by Daoud et al., (1999), it was pointed out that construction contracts in the Middle East suffer from delays and cost overruns. The reasons for the cost overrun includes modification carried out by project owners, lack of understanding of basic contractual issues, frequent changes made in legislation and regulations, etc.,. Knight et al., (2000) studied the factors affecting cost escalation from contractor's perspective and reported that the factors affecting the cost of construction are evaluated in subjective and imprecise terms and are difficult to quantify.

A study was conducted by Dawood et al., 2001 on Japanese civil engineering projects for analyzing cost escalation and risk assessment of infrastructure projects and assessed the possibility of infrastructure projects and developed a forecasting methodology for cost indices. Investigations on factors influencing contractor performance was done by Xiao, 2003 and concluded that the overall performance can be improved by focusing on factors like reducing delays, maintaining stable work force and establishing partnerships with subcontractors. In the case of transport related infrastructure projects, three factors viz length of project implementation phase, size of project and type of project ownership were considered as the reasons for cost

escalation. The primary reason was found to be the length of the implementation phase. Size of the project was the second reason. Regarding type of project, it was found that private ownership was effective in curbing cost escalation whereas public ownership is problematic (Flybjerg, et al., 2004)

Factors like lack of equipment, lack of software, lack of experience, inaccurate time and cost estimate, equipment breakdown and material shortage were reported as the reasons for cost overrun of construction projects (Adnan Enshasis, 2009; Abtab hameed Memon 2010; Yakubu Adisa Dlawale, 2010; Yunos et al., 2014)

Contractor related problems, material-related problems and owners financial constraints were also reported as the causes for cost overrun (Patil et al., 2011; Ibrahim Mahamid, 2013). Analytical methods were also used for predicting escalation cost. The historical escalation rates and indications of trends using analytical methods like simulations, neural networks and trend impact analysis were also made.

## 5. Methods To Minimize Cost Overrun

Various ideas were suggested by researches to reduce cost overrun of construction projects. Ensuring adequate and available source of finance in par with estimated budgets, performing a pre-construction planning of the required resources like labour, material and equipment as well as various project tasks allocating sufficient-time and money on the design phase, deputing a monitoring team for frequent checking of the progress and quality of the work, and selecting a competent consultant and a reliable contractor to execute the project can help reducing cost overrun.

Minimization of internal administrative problems, reducing payment delays, developing good communication between construction parties and good decision making at the right time can narrow down the gap of the construction cost overrun (Abdullah Athornidan, 2013). It was found that major factors affecting cost overrun are the managerial factors that could be easily minimized by improving managerial skills of the construction team by conducting proper trainings.

## 6. Conclusion

The cost escalation of construction projects is an important area to be taken care of in the present scenario. Huge amount of money and the cost overrun of such infrastructure projects over time lead to a great economical loss. The article critically studied the various factors affecting cost overrun and the remedial measures to minimize the cost escalation. Effective implementation of remedial measures can bring down huge economic loss to the nation.

## References

- [1] Osama E. K. Daoud and Omar M. Azzam, Sources of Disputes in Construction Contracts in the Middle East, Technology, Law and Insurance, 4(1-2), 1999, 87-93.

- [2] Knight K and Fayak A R, A preliminary study of the factors affecting cost escalation of construction projects, *Canadian Journal of Civil Engineering*, 27(1), 2000, 73-83.
- [3] Dawood.N.N, Yasuhara.T, Usuda.Y, Matsuda.C and Sawada.A, Analysis of cost escalation and risk assessment of infrastructure projects: an application in Japanese civil engineering projects. In: Akintoye, A (Ed.), 17th Annual ARCOM Conference, University of Salford. Association of Researchers in Construction Management, 1, 2001, 835-44.
- [4] Hong Xiao, David Proverbs, Factors Influencing Contractor Performance: An International Investigation", *Engineering, Construction and Architectural Management*, 10(5), 2003, 322-332.
- [5] Bent Flyvbjerg, What Causes Cost Overrun in Transport Infrastructure Projects?, *Transport Reviews*, 24(1), 2004, 3-18.
- [6] Adnan Enshassi, Jomah A Najjar, Mohan Kumaraswamy, Delays and cost overruns in the construction projects in the Gaza Strip, *Journal of Financial Management of Property and Construction*, 14(2), 2009, 126-151.
- [7] Ade Asmi Abdul Azis, Aftab Hameed Memon, Ismail Abdul Rahman and Ahmad Tarmizi Abd, Controlling Cost Overrun Factors in Construction Projects in Malaysia, *Research Journal of Applied Sciences, Engineering and Technology*, 5(8), 2013, 2621-2629.
- [8] Yakubu Adisa Olawale and Ming Sun, Cost and time control of construction projects: inhibiting factors and mitigating measures in practice, *Construction Management and Economics*, 28(5), 2010, 509-526.
- [9] Rahimah Mohamed Yunos, Che Faridah Che Mahmood, Nor Hafizah Abd Mansora, Understanding Mechanisms to Promote Halal Industry - The Stackholders' Views, *Procedia - Social and Behavioral Sciences*, 130, 2014, 160 – 166.
- [10] B.S. Patil , P.B. Ullagaddi, D.G. Jugati, Factors affecting the cost and quality of construction, *International Referred Research Journal*, 2, 2011, 1-3.
- [11] Mahamid I, Common risks affecting time overrun in road construction projects in Palestine: Contractors' perspective', *Australasian Journal of Construction Economics and Building*, 13(2), 2013, 45-53.
- [12] Abdullah Alhomidan, Factors Affecting Cost Overrun in Road Construction Projects in Saudi Arabia, *Journal of Management in Engineering*, 32(1), 2013.

---

\*Corresponding author.

E-mail address: kash10304@ gmail.com