

Operational Audit as an Effective Internal Control Tool in Construction Organizations

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Abstract:- There are many construction firms in India which are run by the big business houses. They are being operated on a very large scale, thereby leaving for very less scope of any disorganization in the management. With the increase in scale of operations, increases the scope of fraud or any flaw that may have an adverse effect on the company as well as the investors. Effective internal audit provides a tool to ease out all the complexities, ensures that systems and processes are adequate to support the growth and are adapted to the changes in various applicable regulations, thereby ensuring sustained growth and development. For effectiveness of internal audit, it is necessary for the auditor to understand the business and operations of the construction firms. Hence it is necessary that the audit team should comprise of qualified technical engineers to understand intricacies of construction business. This paper discusses the detailed methodology adopted for the effective internal control of the construction firms as well as help the top-level management to observe overall progress of their firm and the role of domain expertise in internal audit.

Keywords: *Internal audit, methodology, internal control, management.*

INTRODUCTION

The construction industry is very important factor in economic activity and wealth creation. This industry has a vast impact on the society and the products of this vital industry are of various types like buildings, roads and bridges, utility distributions systems, railways, airports, harbours, etc. Internal auditors have a key role to play in construction industry with respect to multi-dimensional challenges faced by this industry like project risk, funding strategies, cost reduction, project monitoring, etc.^[6]

Many construction projects, both publicly- and privately-funded, require that a project audit be performed by an independent party. The audit not only tests the accuracy of invoices and other charges incurred against the construction project, but may include a review of processes used in project management and project cost/ schedule controls, and a comparison of those processes to industry best practices. Thus, the audit function is an essential project controls tool.^[1] Simulation is also an important method in audit system. Section 404 of the Sarbanes-Oxley Act of 2002 gives compliance with internal control assurance. The simulation is

staged with conversations among audit staff members and the company's system development manager, databases containing application test data and program library transactions, and readiness questions. The simulation helps learners develop their capabilities for designing audit objectives and procedures for testing system development and for querying databases.^[2] Qualitative and quantitative studies via several samples of the audit committee members and administrators are classified in 27 indicators of audit process quality grouped into three main stages.^[3] Audit provisions are often included in private construction contracts where all or some portion of the work is performed on a cost reimbursable plus a fee basis. In those situations, the Owner wants the right to audit the books and records of the contractor to ensure that it reimburses only those costs that are properly compensable under the terms of the contract.^[4] To manage the various kind of construction projects requires a know-how with organizations and a thorough body of knowledge. The project management consultancy (PMC) has characteristic of knowledge, performance & inter-personal Skills.^[5] Project management consultancy have versatile role in various construction projects and provides the various services from initiation to handing over of projects.

METHODOLOGY

The research method used to achieve the objectives is based on following steps.

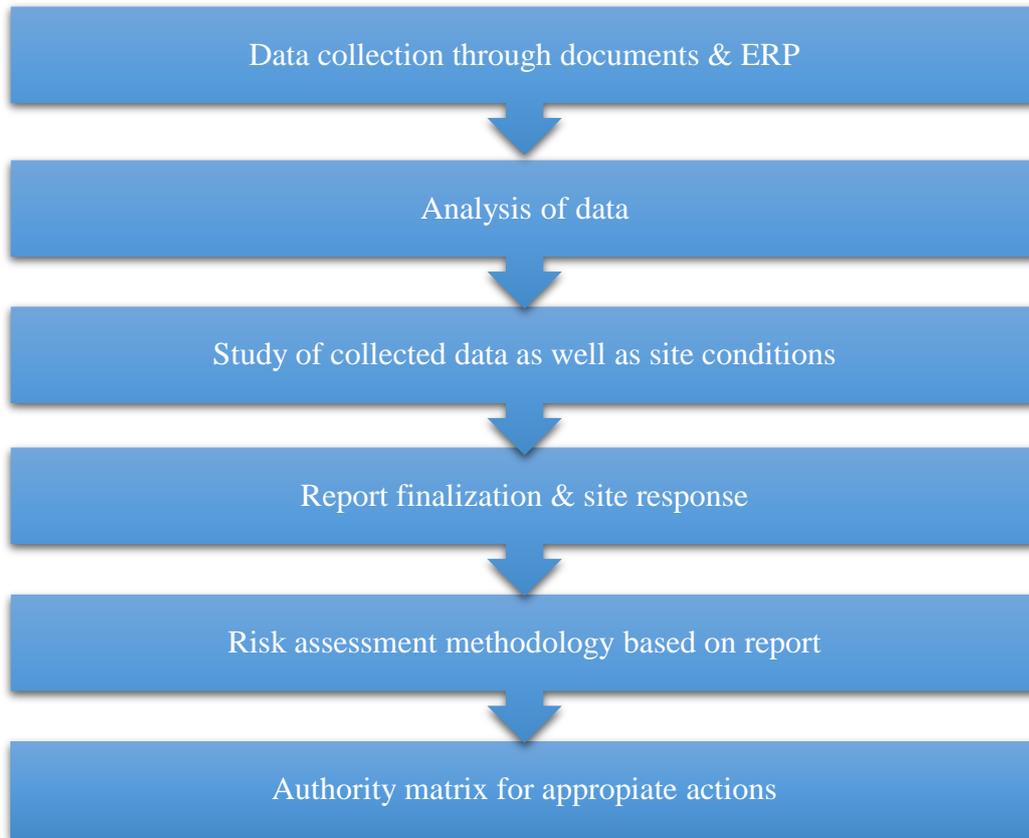


Fig. 1: Methodology

The proposed methodology is sketched in Fig. 1, which consists, six phases: Data collection through documents & ERP, Analysis of data, Study of collected data as well as site condition, Report finalization and site response, Risk assessment methodology based on report, Authority matrix for appropriate action. In phase-I, the data required for audit process is collected through documents present on site as well as through software of ERP. In phase-II, the analysis of collected data is done. In phase-III, the study of collected data as well as site condition is done of various process. In phase-IV, final report after study of all parameters and site response from site person is taken. In phase-V based on final report risk assessment methodology is carried out. Authority matrix for appropriate actions of higher management is done in final phase.

In internal audit observations three categories of group were anticipated namely Policy gap, Process gap and Compliance gap. Similarly, in each of the category the observation is classified as High, Moderate and Low depending on the impact of the audit observations. All three observations are required to be statically analyzed to give management the risk assessment for the project. Results obtained from audit

observations are classified according to their risk rating of the observation. Table 1 shows detailed definition of risk rating. We consider weightage on a scale of 5 as follows.

Table 1. Definition of risk rating

Risk rating	Definition	Weightage
High	Serious irregularities/ regulatory breaches, which require urgent attention from the senior management.	3
Moderate	Irregularities which are not very serious in nature but require mid-level managements action for resolution.	2
Low	Observations which are not irregularities in nature but which could involve organizational efficiencies.	1

The risk score calculated after analysis of observation can be explained with the help of Table 2 in which the risk between 0-50 is at low risk, score between 51-100 has a moderate risk, risk score between 101-200 has a major risk and risk score above 200 has a critical risk.

101-200	Major
Above 200	Critical

Table 2. Definition of risk score

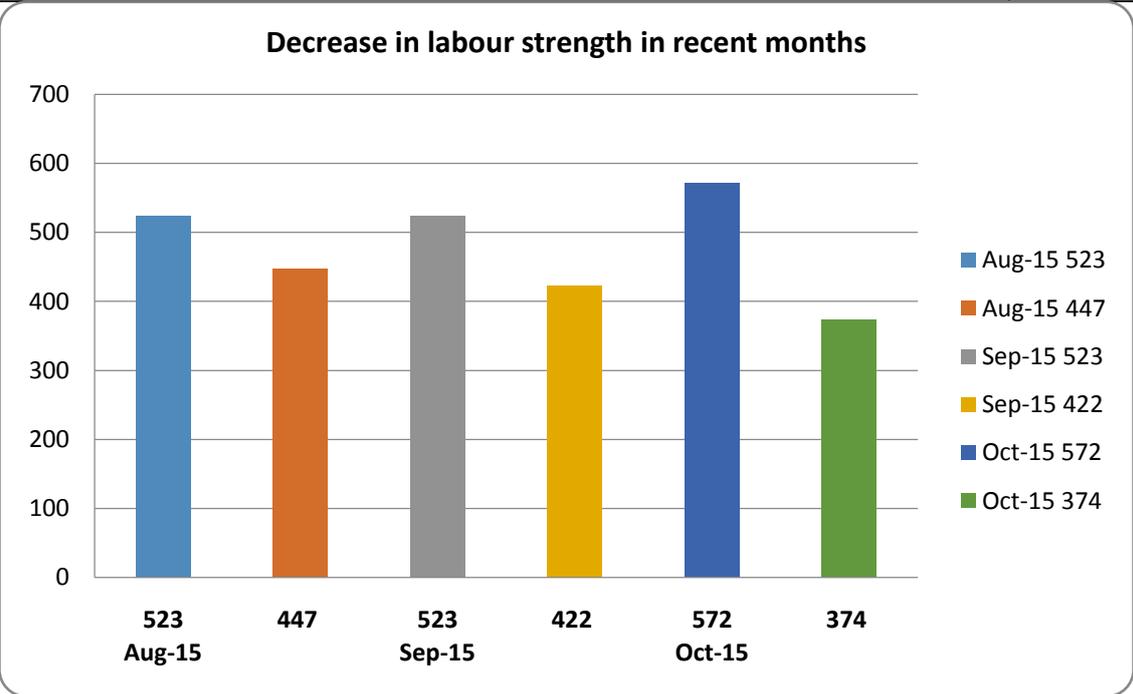
<i>Score</i>	<i>Overall risk</i>
0-50	Low
51-100	Moderate

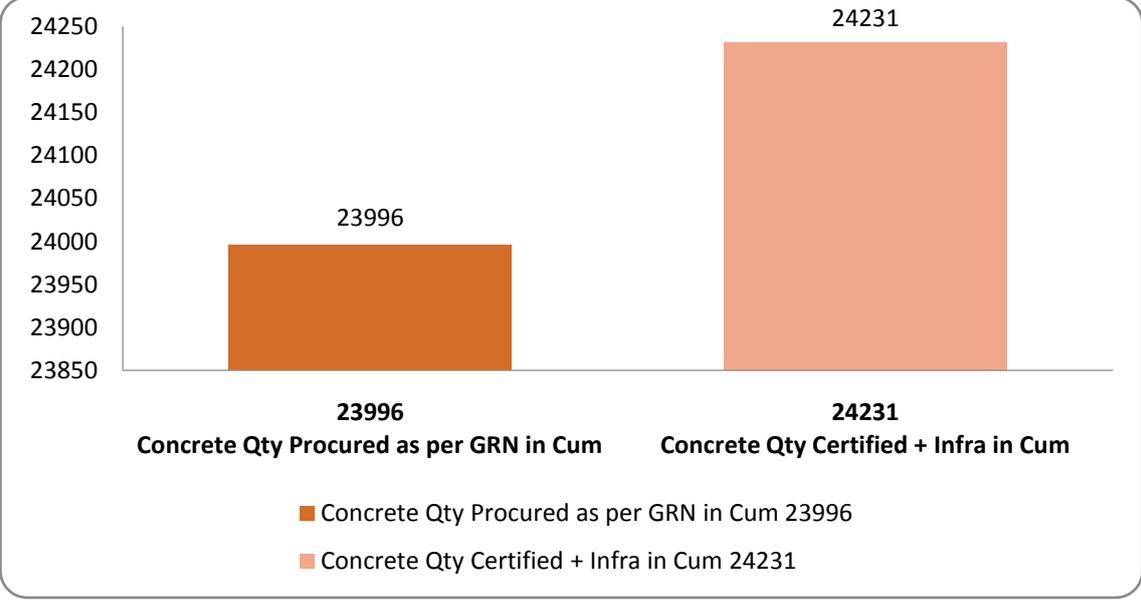
RESULTS & DISCUSSION

The methodology is used to conduct Operational audits on projects like Hospital building, Power generation plant, Business park project & Sports complex along with ancillary building. Some of audit observation which I was part of are illustrated in Table 3.

Table 3. Audit Observations

Sr. No.	Audit area & observations	Risk matrix
1.	Contract	
1.1	Actual contract was done for only Rs. 168 Cr. + Taxes. However, we observed that PSE is prepared for entire Rs. 424 Cr. Technically these other works are yet to be awarded based on co-ordination fees and the amounts of the other packages are only tentative. Rs. 168 Cr. package is to be completed within 18 months. But PSE is worked out for entire 27 months' period.	Policy- Moderate
1.2	There is no clarity on whether 8% co-ordination charges are on basic work done amount of the nominated subcontractor and/or including service tax+ labour cess on their work done amount.	Policy - Low
1.3	As per contract with client, permissible wastages to be mutually agreed but are not yet decided at site. For reinforcement steel and RMC, difference in permissible wastage at later date may affect price variation calculations.	Process-Moderate
2.	Execution	
2.1	To catch up the delay in the project, it was decided to increase the shuttering material from the originally planned quantity. The increase in the quantity of shuttering material will decrease the number of repetitions and there will be under-utilization of shuttering ply and secondly to purchase additional plywood additional expenses will be incurred. Site has taken approval for this increase but the impact on the profitability of the project is about Rs. 99,97,071/-	Compliance-Low
2.2	As per the resource planning, the labour strength was to peak in the month of November and December 2015 with average daily labour strength of 592, but in actual the labour strength was below required level from August 2015 and in fact has reduced every month as shown in Fig. 2	Policy- Moderate

Sr. No.	Audit area & observations	Risk matrix								
<div style="text-align: center;">  <p>Decrease in labour strength in recent months</p> <table border="1"> <thead> <tr> <th>Month</th> <th>Labour Strength</th> </tr> </thead> <tbody> <tr> <td>Aug-15</td> <td>523</td> </tr> <tr> <td>Sep-15</td> <td>523</td> </tr> <tr> <td>Oct-15</td> <td>572</td> </tr> </tbody> </table> <p>Legend: ■ Aug-15 523 ■ Aug-15 447 ■ Sep-15 523 ■ Sep-15 422 ■ Oct-15 572 ■ Oct-15 374</p> </div> <p style="text-align: center;">Fig. 2: Decrease in labour strength in recent months</p>			Month	Labour Strength	Aug-15	523	Sep-15	523	Oct-15	572
Month	Labour Strength									
Aug-15	523									
Sep-15	523									
Oct-15	572									
3.	Planning									
3.1	Site management has procured commercial plywood of 12mm thickness and 12mm thick film faced plywood and 18mm thick peri plywood for the work. Normally film faced plywood is useful for 9-10 repetitions and commercial plywood is useful for 2-3 repetitions. Total quantity of commercial plywood procured as per GRN is 48,201 Sqm worth Rs. 98,60,662.	Process- Moderate								
3.2	As per the site planning total of $48201+27491+5100 = 80792$ Sqm of plywood will be purchased for the revised shuttering quantity of 2,43,831 Sqm. This will give only 3.02 repetitions.	Process- Moderate								
4.	Reconciliation of Major Materials									
4.1	The difference of 364 Cum was observed between GRN record and QA/QC departments record which needs to be reconciled.	Process- Moderate								
4.2	The certified billing shown in Fig. 3 is more than actual RMC received as per GRN by about 235 Cum. Client may recover the excess billing at later stage on reconciliation with actual receipt figures. Therefore, liability should be considered for the excess billing quantity in the CTC statement.	Compliance-Moderate								

Sr. No.	Audit area & observations	Risk matrix
 <p style="text-align: center;">Fig. 3: Total concrete produced</p>		
5.	Client billing	
5.1	Short certified amount of Rs. 1,78,387/- for site office item till RA-10.	Process- Low
5.2	Extra items worth Rs. 77,93,465/- are not certified by the client.	Compliance- Low
5.3	As per clause “General Contractor’s Scope of Work”, general contractor shall be paid in general contractor’s RA bills the goods and services provided to nominated contractor. Site management has not claimed water, power and concrete patching works from nominated contractors.	Process- Low
5.4	Difference in Bill of Quantity (BOQ) in Work Breakdown Structure (WBS) as per are not matching with tender BOQ quantities.	Policy- Moderate
5.5	Differences in certified quantity as per client bill and certified quantity as per WBS observed. Certified quantity should be entered in ERP to respective WBS.	Process- Moderate
6.	Subcontractor Billing	
6.1	Estimated increase in labour cost in Rs. over PSE provision as on Oct 2015 is Rs. 28,68,903/-	Process- Low
6.2	As per standard norm the departmental labour cost should be within 15% of total labour cost. But in this case, as shown in Fig. 4 it has gone up to 31% which is quite high and needs to be controlled.	Compliance- Low

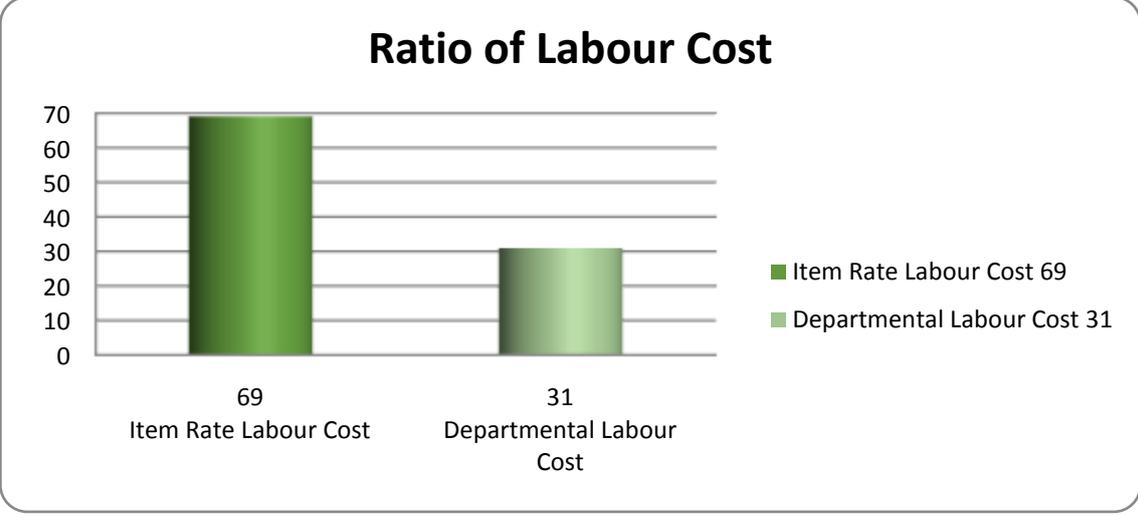
Sr. No.	Audit area & observations	Risk matrix
 <p>Fig 4: Ratio of labour cost</p>		
7.	QA/QC	
7.1	RMC is procured from various vendors with different cement and fly ash contents and standard approved mix design was not given to all RMC vendors. It was observed that in many cases the minimum cement content criteria was not complied with and the RMC supplied is with less cement content for M30, M35 and M40 grades.	Process-Moderate
7.2	Mechanical couplers are used in foundation and in columns at site but there is no testing done at site. Similarly, in the approved quality plan there is no provision of coupler testing. There is no mention of couplers in the checklist prepared for site verification	Compliance-Moderate

Table 4. Summary of observations

Risk ranking/Control gaps	High	Moderate	Low
Policy gap	-	3	1
Process gap	-	6	3
Compliance gap	-	2	3
Total	-	11	7

CONCLUSION

As risk score is with 0-50, the overall risk for project is low, based on audit observations 51.72% impact percentage is for process gap and 24.13% impact percentage is for policy issue

and for compliance gaps. Hence it can be concluded that the middle level management has to concentrate on process gap and proper policy and compliance should properly execute on site.

Table 5. Calculation of impact percentage

Risk rating	Weightage			Number of audit observations impact				
	High	Moderate	Low	High	Moderate	Low	Risk Score	Impact %
Policy	3	2	1	0	3	1	7	24.14
Process	3	2	1	0	6	3	15	51.72
Compliance	3	2	1	0	2	3	7	24.14
Total					11	7	29	100

With advancement in construction techniques & technology introduction of ERP (Enterprise Resource Planning) software, the construction industry has become more technology driven and the operations are becoming more & more mechanized. Due to these advancements conducting internal audit is also becoming more challenging and technology driven. Hence inclusion of technical person having domain expertise is becoming inevitable. The expert having operational knowledge and ERP expertise will be the necessity in the field of internal audit of construction firms. In fact same will be applicable for other engineering fields such as automobile industry, mechanical industry, power plant refineries.

Technical person having domain expertise in these fields will be required along with finance persons for effectiveness of internal audit process and for value addition to the client. This requirement will open new avenue for the engineers in various disciplines for their career in internal auditing.

The robust internal control developed and monitored by strong internal audit team having domain expertise can improve efficiency of the construction firms and will minimize the chances of frauds.

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