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CLAIMS AND SETTLEMENT IN ROAD PROJECT

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Abstract — Claims are becoming inevitable and unavoidable in modern projects involving new technology, specifications, and complexities. There are many reasons for claims, for instance time extension, machinery change, material deviation, manpower, price escalation, accidents on site, changes in design, etc., which result into disputes. Confusion also exists in adoption of dispute resolution techniques, such as arbitration, conciliation, mediation, dispute resolution board, etc. In this paper, various factors responsible for claims and dispute in road projects and their intensity have been identified. The results are implied through a survey of clients, contractors, and consultants involved in road projects. The work focuses on the predominant causes of dispute and the methodology adopted by stake holders for settlement of the same.

***Keywords*:** Claims, dispute resolution, disputes, road projects, negotiation

1.0 INTRODUCTION

India has one of the largest road networks in the world. A road vision 2021 prepared by the Department of Road Transport and Highways, proposes a total national highway network of about 80000 km by the end of the year 2021. In the present context, however, the demand has exceeded the supply. Although demand seems very encouraging, there are problems associated with this sector, including contractual terms and condition favouring the client, land acquisition, cost overrun, etc. This research paper sheds light on the claims that are associated with road projects and the measures undertaken for settlement of disputes. Amongst the hurdles experienced in execution and construction, contractual claim is one of the major obstacles that are bound to result in escalated cost and time overrun. This work focuses on

- Studying the various reasons that give rise to claims in road project contracts.
- Studying the various remedies that exist for settlement of claims.
- Prioritizing how the claims can be avoided by using proper documentation.

2.0 LITERATURE REVIEW

Sinha and Wayal (2015) examined and proposed a series of models to demonstrate the interdependency between key variables that contribute to disputes. The developed models are used as strategies to reduce the occurrence of disputes in construction.

Although the construction industry has adopted the principles and techniques associated with lean production and supply chain management to improve its performance, poor contract documentation, scope changes, and adverse behavioural adaptations prevails. Issues associated with uncertainty and omissions, which are overlooked at the planning stage trickle out during execution thus impacting the progress or even requiring design changes leading to cost and time overruns. Their work elaborates on several key factors, such as defining project scope, contractual conditions, risk allocation, and procurement strategy that may influence in achieving the project outcomes. Mohammed S., et al., (2015), in their research work with the project data from the Colorado Department of Transportation (CDOT), concluded that cost overruns are common in road projects. They adopted the statistical analysis tool to study the project data drawn from road and highway construction in Colorado to focus on the effects on the occurrence of claims. A total of 780 projects were selected from a dataset of 1,060 projects completed in a time window from 1997 to 2012, in which their findings showed 213 claims within a subset of 62

claim-contained projects. It was observed that for the CDOT projects, schedule delays emerged as the most common cause associated with claims. The study also showed that projects with fixed completion date schedules are more susceptible to claims than projects with more flexible schedules. Elziny et al., (2014) enunciated that a project is ideal when it meets the estimated deadline, cost, and the required quality. However, in construction, disputes tend to harm the delivery of the project and thus needs curtailment. Unorganised processes in the industry, misunderstanding of project documents, and weak communications between the project contracting parties are said to be the vital reasons for such conflicts. Unnecessary delays and inefficiency lead to rapid escalation of costs and further damages the client/supplier relationship. Construction disputes could be resolved using several techniques, including negotiation, mediation, conciliation, review, mini-trial, arbitration, and litigation. On the basis of the study, the authors have deduced that the most significant sources of disputes are contract management practices, followed by contract documentation, financial, and project related issues, while the least bothering are factors such as force majeure, construction laws, etc. Nitin Chaphalkar et al. (2014) found that out of 52 arbitration awards analysed, 38 awards pertained to delay claims. The delays were observed due to numerous reasons, such as late handing over of site, late issue of drawings, late supply of materials, delayed payments, delay on the part of subcontractor, etc. Dhaval et al. (2013) undertook a study with 573 claim cases resulting from 77 highway construction contracts in India constructed over a period of the past eight years. As per the official data analysed by them, about one third of the highway projects, involving a sum of US$1.9 billion, was stuck in arbitration despite the government's best efforts to speed up road development in the country. Chabota Kaliba et al. (2009) studied the causes and effects of cost escalation and schedule delays in road projects. A detailed survey and interviews were conducted which proved that the bad or inclement weather due to heavy rain and floods, scope changes, environmental protection and mitigation costs, schedule delay, strikes, technical challenges, inflation and local government pressures were the major causes of cost escalation in Zambia's road construction projects. On the other hand, delayed payments, financial processes, and difficulties on the part of contractors and clients, contract modification, economic problems, materials procurement, changes in drawings, staffing problems, equipment unavailability, poor supervision, construction mistakes, and poor coordination on site, changes in specifications and labour disputes and strikes were found to be the major causes of schedule delays in road projects. Chaitanya Khekale et al. (2001) found in their research work that construction projects are increasingly complex, resulting in complex contract documents. Complex construction can likewise result in complex claims and disputes. In order to deal with or control the claims effectively, parties concerned should establish good construction claim management processes in their organizations. The major issues in claims and disputes are identification of problem, the party responsible for it, and ascertaining the time and cost impact of the claim. Jergeas et al. (1994) listed the reasons for claims in contracts, as follows:

- Increase in scope of work
- Inadequate bid information
- Faulty and /or late owner-supplied equipment and materials
- Inferior quality of drawings and/or specifications, giving rise to ambiguities in contract requirements.
- Insufficient time for bid preparation
- Stop-and-go operations because of lack of coordination, design in-formation, equipment, or material.
- Work in congested areas and overcrowding
- Acceleration to regain schedule
- Unbalance bidding and underestimation

Thus, it can be summarized that the main causes and frequency of disputes in construction of road projects are as following:

- Delay in handover
- Land Acquisition
- Refund of maintenance deposit

- Delay in Starting work
- Improper documentation
- Change in policies
- Law and order problems
- Cost Overrun
- Inadequate or incomplete specifications
- Price escalation
- Extension of time (EOT)
- Extra items and Variations
- Delayed payments
- Loss due to idle machinery and idle labour
- Inaccurate estimation
- Deviation/ change in scope
- Variation In design/delay in drawings
- Natural calamities
- Unavailability of labour
- Unbalanced bidding
- Interstate disputes
- Partiality by the Engineer
- Poor investigation
- Inefficient productivity
- Natural Calamity, Accidents
- Unfavourable ground conditions
- Poor quality of construction work and use of wrong equipment
- Coordination with client
- Coating very low rates in the Tender
- Different interpretations of the contract provisions
- Late delivery of raw materials

From the literature review, it is observed that the frequencies of occurrence of claims are very high in road projects and about seven out of 10 projects are under claims. However, research work infers that claims can be avoided by proper understanding of contractual terms and conditions and also suggested the efficient process to avoid these. This work is an attempt to reason out the cause of claims in Indian road projects and corroborate a suitable system to settle the same.

3.0 RESEARCH METHODOLOGY

Quantitative research methodology using questionnaires was employed to collect the data. Survey questionnaires were distributed to clients, contractors, and consultant firms associated to road projects. The questionnaire was organized into 3 sections wherein section 1 contained questions related to causes of claims and delays, section 2 consisted of type and intensity of claims, and section 3 consisted of methods of settlement of disputes. The scaling of the responses was undertaken using the Likert method. The questionnaire was circulated among 70 (Client, Contractor, and Consultant) firms, out of which 49 responded, in which this analysis had been based upon.

4.0 DATA ANALYSIS AND FINDINGS

The data collected were analysed by the weighted average method. The results obtained from the study are summarised below.

4.1 MAIN CAUSES AND FREQUENCY OF DISPUTES IN CONSTRUCTION OF ROAD PROJECTS

From the literature review, the types of disputes were identified. A total of 18 prominent kinds were observed, as listed in Table 1.

Table 1 Types of Claims

Sr. No.	Causes of Claims
1	Land Acquisition
2	Improper documentation
3	Change in policies
4	Law and order problems
5	Cost Overrun
6	Price escalation
7	Delayed payments
8	Inaccurate estimation
9	Deviation/ change in scope
10	Variation In design/delay in drawings
11	Natural calamities
12	Unavailability of labour
13	Interstate disputes
14	Poor investigation
5	Inefficient productivity
16	Coordination with client
17	Late delivery of raw materials
18	Delay in handover

The respondents were made to give their opinion on priority basis regarding the root causes leading to dispute in road projects. The responses received are plotted in Figure1.

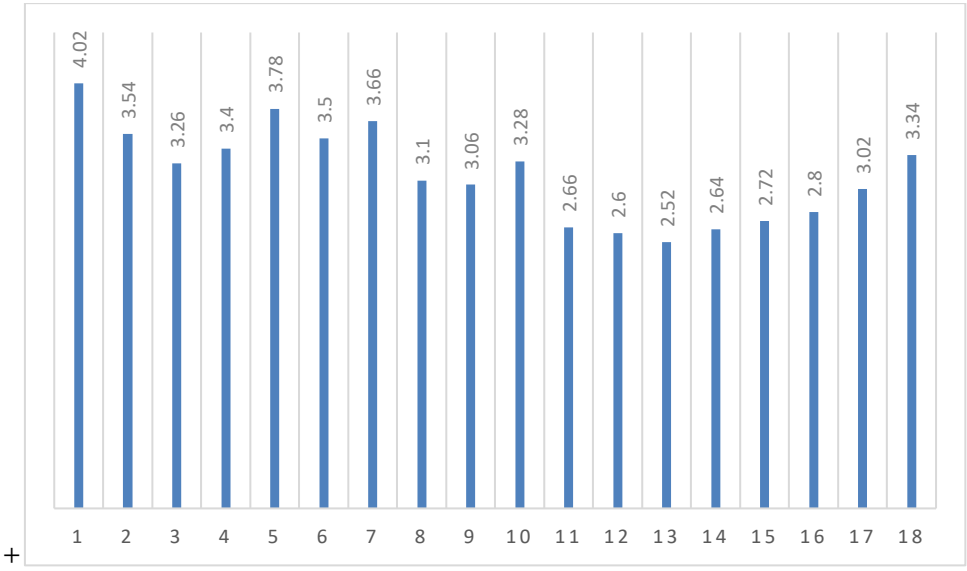

Figure 1 Types for Claims

Figure 1 shows that the most common reasons for disputes in road projects are land acquisition, improper documentation, cost overrun, price escalation and delayed payments. Out of the total respondents, 51% pointed to land acquisition being one of the prominent causes, followed by 32% for cost overrun, and

21% for delayed payments. Thus, it can be ratified that the given reasons are the main causes leading to time and cost overruns in a project.

4.2 PROMINENCE OF CAUSES

The respondents were asked for the most prominent cause of delay and disputes in road project. The responses identified on the basis of survey are shown in Figure 2.

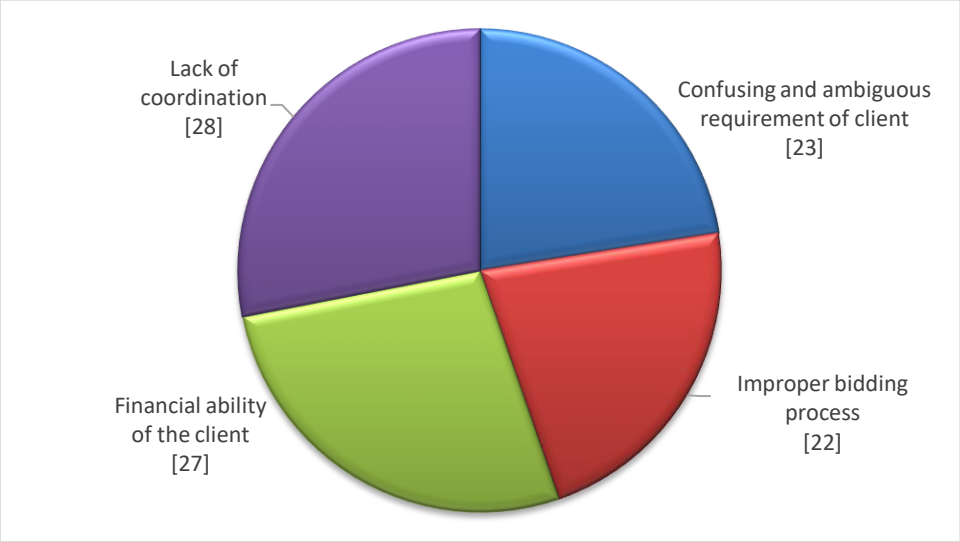

Figure 2 Causes for delay and dispute

From Figure 2, it is observed that lack of coordination between client and contractor, which is around 28%, emerged as one of the reasons followed by financial ability of the client (27%) for delays and disputes in road project. However, from the graph, no predominant cause has been observed and thus confusing and ambiguous requirement of clients (23%), as well as improper bidding process (22%) noted as a cause for delay, which placed the entire burden on client for the occurrence of claims.

4.3 DETERMINING THE PHASE OF THE PROJECT IN WHICH MOST DISPUTES OCCUR

The respondents were questioned on the most eminent phase of the project during which disputes arise. The responses received are shown in Figure 3.

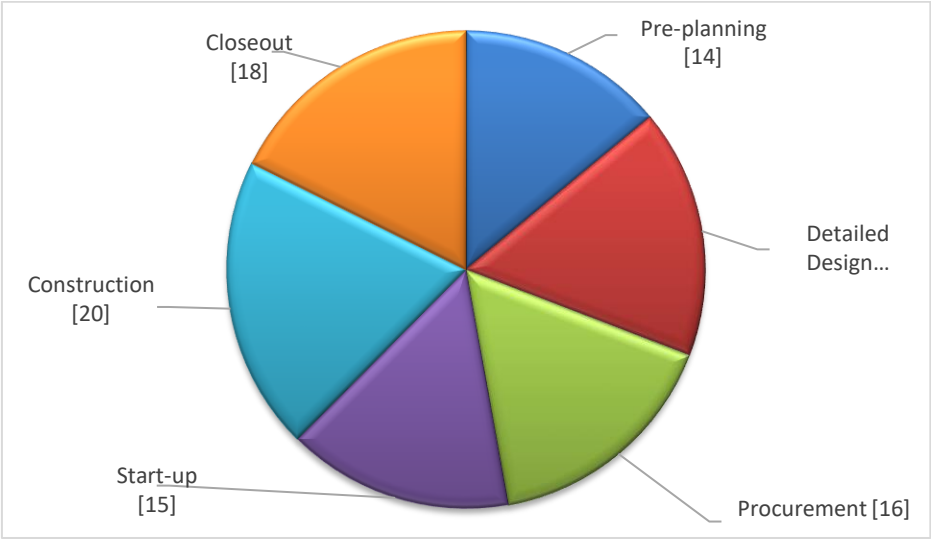

Figure 3 Incurrence of Dispute in Project Life

Figure 3 shows that the construction phase (20%) and the close out phase (18%) raise an alarming when it comes to disputes. However, it is also noticeable that the other phases of a project life cycle, such as the detailed design (17%), procurement (16%), start-up (15%) and pre-planning phase (14%), which also contribute to the causes of delay and dispute and thus cannot be altogether neglected when a project is undertaken.

4.4 INTENSITY OF CLAIMS

The respondents were inquired about the influence the claims can have on the project performance. The opinions of the respondents are plotted in Figure 4.

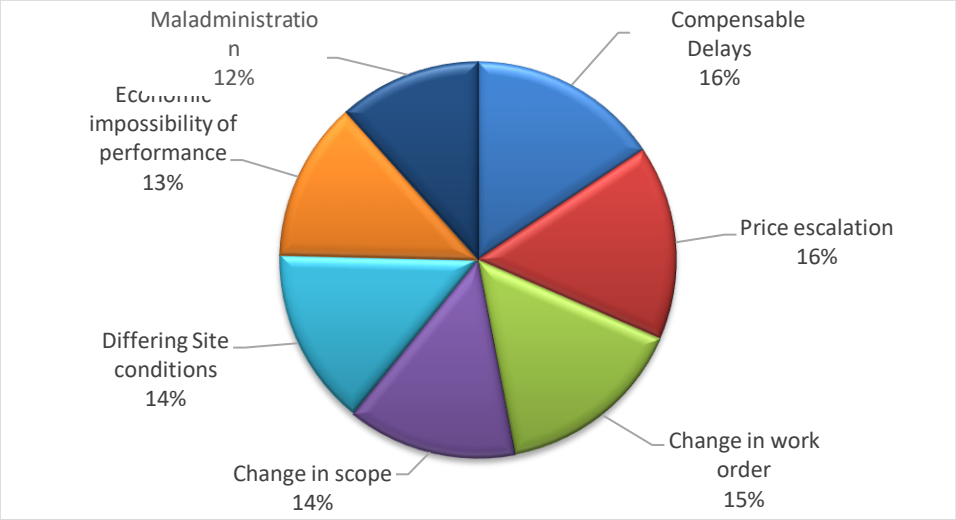

Figure 4 Intensity of Claims

From Figure 4, it is seen that every dispute has nearly the same impact on the project performance. Thus, it is implied that whatever be the reason for a claim and whatsoever be the level of importance, it does affect the project performance. From the graph it can be inferred that maladministration (12%) has the lowest intensity while price escalation (16%) and compensable delays (16%) have high intensity on the project performance. Change in work order (15%), changes in scope (14%), differing site conditions (14%) and economic impossibility of performance (13%) are nearly same and thus have the same measurable damage on the performance.

4.5 CLAIMS AS PER COMPLEXITY OF PROJECT

The respondents were questioned whether the changing scenario and complex projects are the reasons for the claims having risen in the construction industry. The view of the respondent is given below in Figure 5.

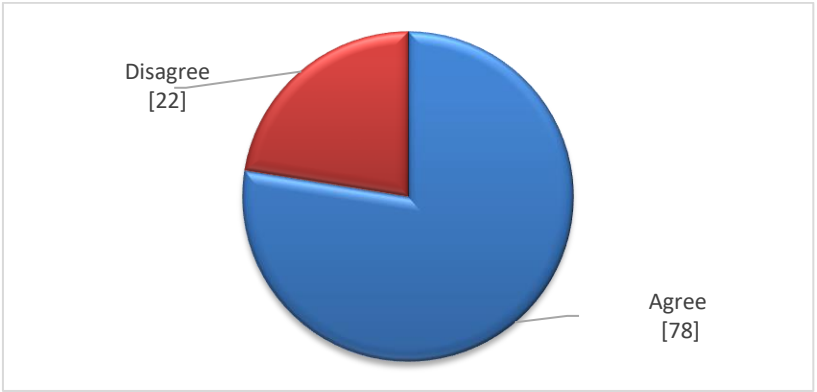

Figure 5 Claims as per Complexity of Project

From Figure 5, it is obvious that 78% of respondents agreed with the projects becoming more complex. Complex projects involve a whole ambit of activities with involvement of various stakeholders having differing roles and responsibilities varying during the project life. Thus the likelihood of disputes arising also spurts up if proper system of administration is not maintained.

4.6 TYPE OF CLAIMS USUALLY OCCURS

The respondents were inquired to classify the claims faced by stakeholders in road project. The responses received are shown in Figure 6.

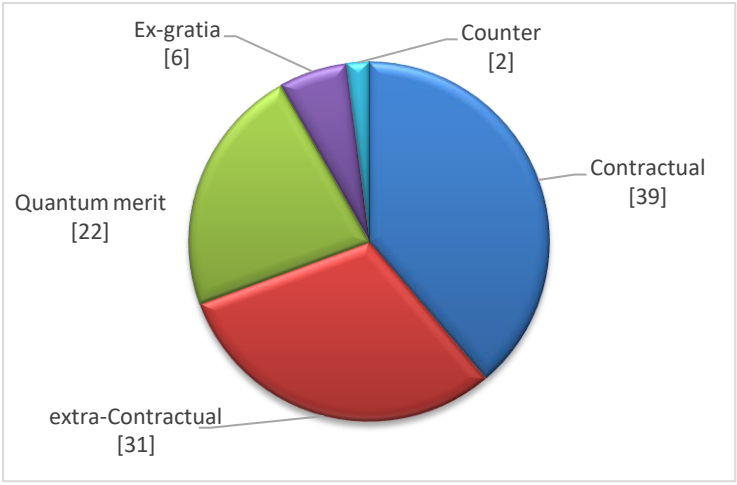

Figure 6 Type of Claims

Figure 6 shows that contractual claims (39%) constitute to a major fraction of the claims faced in road project followed by extra contractual claims (31%). These together sums up to 70% of the total claims encountered. It is noticed that the quantum merit claims constitute around 22% which is quite an alarming percentage. However, as per the opinion of the experts, the ex-gratia (6%) and counter claims (2%) are quite marginal in size and thus not really worrisome to the stakeholders of the project.

4.7 VARIATIONS OCCUR DUE TO STAKEHOLDERS

The opinion of the experts was taken to get a feel as to who is responsible for the claims that occur in the road project. This is plotted in Figure 7.

Figure 7 Stakeholders

Figure 7 implies that each stakeholder is equally responsible for claims that arise in the project although clients' share of the responsibility is slightly higher in comparison to the others. When this graph was evaluated to the category of the respondents surveyed, it was observed that each stakeholder was involved in a blame game, wherein client felt contractor was responsible and vice versa.

4.8 EFFECTIVE WAY TO SETTLE THE CLAIMS

The perspective of the respondents was taken to understand the mechanism they resorted to settle the claim encountered in road project. The responses received are plotted in Figure 8.

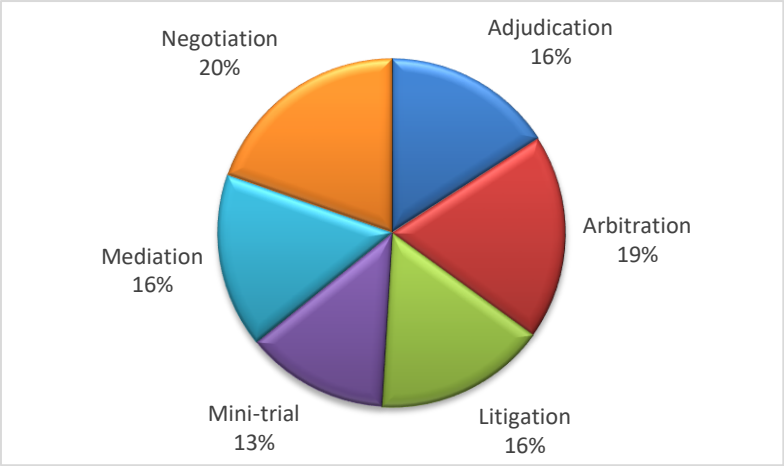

Figure 8 Method of Settlement

Figure 8 shows that the most frequently used method for settlement of claims is negotiation (20%), followed by arbitration (19%) and mediation (16%). Literature review also elaborates on the fact that negotiation is always the most preferred, fastest, and cheapest way of settling a dispute. As negotiation reflects the direct communication between client and contractor, there is confidentiality of information and the process is simple, thus preferred by the industry. It is also seen from the responses that most of the stakeholders would altogether avoid mini trial (13%) as resolution technique and shall employ only in emergencies.

4.9 IDENTIFYING THE IMPORTANT DOCUMENTS REQUIRED AT THE TIME OF SETTLEMENT

The respondents were inquired about the documents that are generally asked as evidences for settlement of claims. The responses are plotted in Figure 9.

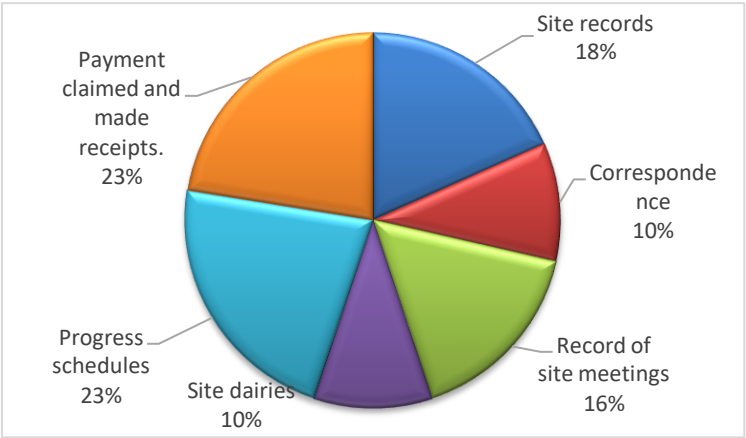

Figure 9 Evidence for Settlement

Around 46% of the respondents have inferred that the progress schedules and payment claimed & made receipts are the most frequently reviewed documents at the time of settlement of claim. This can well be linked to the phase of occurrence of dispute which was essentially the construction and close out phases, and thus, these documents play a crucial role as evidence. Other documents also viewed as evidence are site records (18%), record of site meetings (16%), site dairies (10%), and correspondence (10%) during the execution.

4.10 EFFICIENCY OF SOFTWARE FOR SETTLEMENT OF CLAIMS

The respondents were asked about the different measures adopted by them to settle claims. They were also asked whether software could be helpful and effective in time saving for claim settlements in India. The expert opinions are plotted in Figure 10.

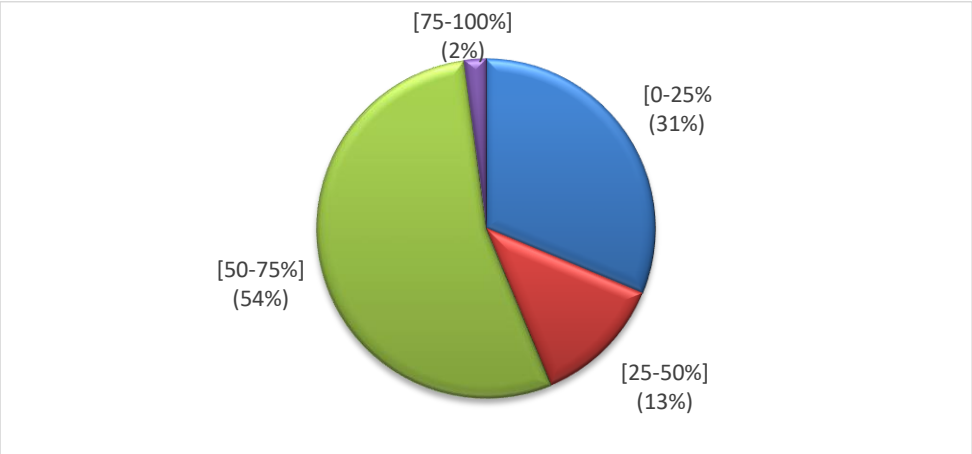

Figure 10 Efficiency in Software Based Resolution of Claims

Figure 10 shows that (50-75%) of the respondents believe that software-based approach could be effective in India as 10-20% of the project cost is involved in claims and also has immeasurable time loss in its settlement. Thus, implementation of software which may come at a cost may overall help in keeping the project on track and reduce the chances of delay thus leading to a net saving.

5.0 MITIGATION MEASURES

This work concludes that land acquisition, improper documentation, cost escalation, and late payments are a few predominant causes of time and cost overruns. In order to overcome these causes, a few solutions on the basis of the primary literature and expert opinion have been proposed in this research paper.

5.1 SOLUTION FOR LAND ACQUISITION

- Government to hold auction for large tract of land wherein farmers should be given an opportunity to submit an asking price at which they are willing to sell their land. This can be also extended to land owners in the surrounding areas, hence giving the government an opportunity to get the cheapest deal (Ghatak & Ghatak Ghosh, 2011).

- Take all unsold plots within the project site and relocate their owners to the sold plots outside it (perhaps paying a lump sum amount to cover the inconvenience of relocation, possible differences in soil quality, sentimental attachment of ancestral property, etc.). A maximum price may be set for the auction to prevent runaway costs. The project however can be cancelled if the price exceeds this maximum price.

5.2 SOLUTION FOR IMPROPER DOCUMENTATION (PAULOS INGLESIS, 2013)

- Engineers and construction team on site should have easy access to all documents relevant to their job for e.g. drawings, method statement, progress report etc. This could be in the form of hard copies, electronic document management system or shared network drives.

- When a revision in drawing or method or material change is initiated, a system needs to be maintained to pass the information to all the relevant persons through email, through phone calls or meetings. This shall help in reducing the rework which takes place due to miscommunication.
- To keep track of changes in drawings and documents a colour coding or marking scheme should be implemented guiding the construction personnel of the revisions undertaken.
- Every document should have a unique code number for easy identification and traceability. This coding/numbering system should be described in the quality procedure reports.
- Once revisions are undertaken all the previous drawings should be scrapped or stored far at site so as not interfere with the revised documents.

5.3 SOLUTION FOR COST ESCALATION

Cheri Hanes et al., 2015 mentioned some measures to over cost escalation and these include:

- To make up for the loss due to cost increase, an escalation clause needs to be included in the construction contracts and subcontracts. If possible to also include contingency for exceptional escalations.
- Financial prequalification is critical to insulating a contractor's projects from the impact of cost escalation on subcontractors. However If even the subcontractors do financial analysis than this shall boost also the contractor's overall prequalification effort, allowing greater assurance that they can absorb the cost of an anomaly in escalation on a given project.
- Construction schedules also present potential to reduce escalation exposure, or mitigate its impact. To reduce the time exposure on a project and also the potential exposure to many forces contributing to escalation, contractors should examine their schedule for potential acceleration, or stacking of activities thus reducing the time duration and exposure to potential escalation.
- As builders, contractors have options related to the procurement of materials and are aware of price hikes. They should have a strategic delivery/product storage plan enabled to have materials purchased and stacked in advance of.
- Value engineering needs to be practiced to reduce the cost escalation to a large extent.

5.4 SOLUTION FOR LATE PAYMENTS

- This can be overcome by introducing a claim on interest clause in the contract for late payments. However client can misuse it for suspending payments and not being responsible for breach of contract (Samuel K. Ansah, 2011).
- Another remedy can be to suspend further performance of his obligations under the contract bill payments are made available.

5.5 SOLUTION FOR COST OVERRUN

- These can be reduced by proper documentation, proper check by related authority, pre planning and post analysis.
- A conscientious estimator should double-check the estimate and includes suppliers and subcontractors pricing.

6.0 CONCLUSIONS

The following conclusions can be drawn from the study:

1. The most common reasons for claims are Land acquisition, improper documentation, cost overrun, price escalation, and delayed payments.
2. Construction and close-out are the phases wherein most of the claims occur and hence monitoring the project through this phase is essential.
3. Lack of co-ordination between the parties is a prominent cause for claims, whenever there is a change in government policies, change in material prices, change in scope, etc.
4. Negotiation is found to be the most selective method for the settlement of claims in road project.
5. Document handling has to be a critically undertaken as payment receipts and progress schedules maintained at every stage of the project act as evidence at the time of settlement of claims.
6. More complex the project likelihood of claims is high.

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