

EVALUATION OF FACTORS CAUSING CONFLICTS & DISPUTE IN CONSTRUCTION PROJECTS BY AHP & IMPI METHOD

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ABSTRACT – Construction industry is one of the significant areas that records for an impressive rate of the Gross Domestic Product (GDP) across the various countries. The construction industry is covering a rapid growth across worldwide. As the industry is dynamic in nature; due to this aspect the construction projects are probably going to have a characteristic potential for disputes and conflicts and it depends upon the size of project, time of completion, delay etc. Construction disputes, when not settled in an opportune way, turn out to be exceptionally basic a while later. This paper is aim to analyze the factors which are mostly responsible for conflicts and dispute in construction. In order to do so a literature survey is conducted that gives the desired factors which leads to dispute in construction. The factors which are derived by literature survey are further classified in their appropriate categories. In the end, an investigation is completed by using the process of analytical hierarchy process (AHP) and important index (IMPI) which gives the relative importance of these factors. This paper is expected to believe by helping the stakeholders to follow-up the main causes of conflicts and dispute in construction projects.

Key Words: Conflicts, Disputes, Construction Projects, Construction Industry, Claim, Delay, Contractor.

1. INTRODUCTION

The construction industry plays a crucial role in the growth of the country by economically. It also helps in the urbanization of any rural areas. However, due to modernization in the previous working procedure and evolving of new technique to do work the whole environment turning to be more and more complex and clashing of ideas among the participants in industry, this in the end prompts to conflict and dispute in the projects.

Conflicts and disputes consider as the critical factors in every construction project as they can arise in the middle of the project and not only create a fluctuation in the pre-planned schedule and destroy it but also results in increasing the construction cost, completion time, and performance. As it is known that the disputes are the main reason to worry. Thus, it is very important to find the causes of it and remove as soon as possible because they leads to delay which can affect the performance, and loss on money (Fenn, 2007)[1].

Moreover, by the enrollment of disputes in construction results in the failure of anticipate budget, and also lead to the ruining of business relations.

According to Gebken (2006), it has been seen that the disputes have to be resolve out quickly in the first place as it arise to avoid the need of formal claim by the intrusion of the third party, which would minimizing the chance of ruining to relation among the participant involved in the construction work [2]. It also helps in making better relation and save of time. Which results in smooth processing of constructional work, less fight, does not need for lawsuit for claim process, fast & efficient work and good end results Gibbons (2007). In other words, it can be said that disputes are the reason to worry in all construction works [3].

As we studied that the disputes in the construction vary with size, budget & time of the project. Since, the public sector involves a lot of work which have to be got done across the country. However, these kinds of projects are associated with a large amount of conflicts & dispute, complexity due to the size of the covering field.

On a different point of aspect we can also say that if the dispute is already get involved in the project then, it is better to trying to avoid the dispute by finding out the reason behind it rather than trying to resolve it because, the resources which are used to solving these problem can be used in better places to make the construction cost low (Fenn, 2007) [1]. In simple words, by the application of dispute, it only makes the cost of the project more. However, that money can be used in many better constructional environments by just use of better way to do it (Commerce, 2002) [4]. Now, from the above point of view discussed above, it is very clear that disputes will result in creating a devastating holding over each participant who is involve in this industry. Thus, it is wise to avoid disputes rather than resolving them when they have already occurred.

2. OBJECTIVE

- To investigate the main causes of conflicts and disputes in construction projects.
- To distinguish the factors responsible for conflicts and dispute.
- To find out the relative importance of the factors creating conflicts and dispute.

3. SOURCES OF CONFLICTS AND DISPUTE

For finding out the factor responsible for conflicts and dispute in the construction projects, a literature survey is conducted in which several works of the researchers have been analyzed and the critical factors are taken which was common in most of the papers. Further, the selected factors are again classified with in their appropriate or desired categories.

Total 30 numbers of factors are identified by literature study and these factors are classified into five categories as show in Table. 3.1.

Table -3.1: Lists of Factors Causes Conflicts & Dispute In Construction Projects.

S. NO.	Group	Factors
1.	Owner Related	Unrealistic expectation of owner
		Delay in payments
		Acceleration from owner side
		Change of scope by owner
		Complexity in project from owner side
		Failure of owner/respond to issues in a timely
2.	Contractor Related	Contractor Financial Failure
		Delay in Project
		Lack of Quality Control
		Lack of Management & Administrative Process
		Need of Time Extension
		Unfair Distribution of Risk
		Contractor Being of Poor Means
3.	Consultant Related	Excessive Quantity Variation
		Errors in Design & Drawing
		Change of Site Condition
		Insufficient Specification
		Lack of Knowledge

4.	Third Party & Human Behavior Related	Excessive Quantity of Work
		Failure of Planning
		Lack of Team Sprit
		Poor or Lack of Communication
		Misunderstanding Among Project Participants
		Failure of Participant to Adjust Promptly With Changes
		People protest / Interruption
		Adverse Weather / Act of God
5.	Design & Contract Related	Unforeseen / Unpredictability
		Lack of Available Information
		Ambiguity in Documents
		Double Meaning in Documents

The Table 3.1 will be used for analyzing the data to find out the relative importance of the factors by AHP & IMPI.

4. RESEARCH METHODOLOGY

For reaching out the goal of this paper two approaches are used; first one is analytical hierarchy process (AHP) which is used to calculate the relative importance of the main groups and the co- factors under each group. While, the other approach used is important index (IMPI) which is used to find out the relative importance of all the factors.

4.1. Analytical Hierarchy Process (AHP)

AHP is the analytic hierarchy process to assemble or arrange (structured) technique for organizing (well ordered) for difficult or complex decision. It was developed by Thomas L. Saaty in 1970. AHP include modeling the project, its valuation, its weight and then its analysis. Some of the history of AHP tells that it notifies (inform, apprise) readers of resource publication, conference and other events or issue of interest to researcher. By the use of AHP the relative importance of each factor can be find out which will help in ranking these factors. Before starting the process a model for the analysis have to be prepared which consist the main dispute causes as first category and the other consists of sub-categories. Five main dispute factors as main category are included in the first level of hierarchy and the remaining sub-categories i.e. 30 sub-dispute factors in the other level, as shown in Table 3.1. The decision-making process can take place, as the hierarchy structure is established. The decision-making process has been carried out by a team of experts

who have enough experience related to construction disputes (Stuart H. Mann 1995) [5].

4.2. Important Index (IMPI)

The information gathered to decide the most influential factors on project management of the project is done through a survey by explorative questionnaires to the respondent required in daily activities of construction firms in Gwalior region of India. The research methodology for study contains two phases. The first phase included a literature search and interviews. The writing audit was led through books, meeting procedures, articles, web and worldwide project administration diaries. As the result of this stage, 30 causes for conflict and dispute is find out. These causes were sort in 5 fundamental groups. The second stage incorporates arrangement of survey in light of various approach utilized for offering positioning to causes for conflict and dispute in construction projects. In this method Importance Index (IMPI) is figured as a part of frequency and severity.

5. DATA ANALYSIS

The data is analysis by both of the techniques these are as follows:

5.1. Data analysis by AHP

AHP is used to determine the relative importance of the main group and the co-factors corresponding to particular group.

Table -5.1: Group Comparison & Ranking.

Group Categories	Weight	Rank
Owner	0.172406679	3
Contractor	0.317404577	1
Consultant	0.088446984	5
Third Party & Human Behavior	0.316769656	2
Design & Contract	0.104972104	4

The relative importance and the ranking of the main group is shown in Table 5.1.

Table -5.2: Ranking of Owner Related Factors.

Owner Related Factors	Weight	Rank
Unrealistic expectation of owner	0.048334274	6
Delay in payments	0.450606785	1

Acceleration from owner side	0.139908258	3
Change of scope by owner	0.222679281	2
Complexity in project from owner side	0.08787167	4
Failure of owner/respond to issues in a timely	0.050599732	5

The relative importance & ranking of the factors comes under the influence of owner is shown in Table 5.2.

Table -5.3: Ranking of Contractor Related Factors.

Contractor Related Factors	Weight	Rank
Contractor Financial Failure	0.340132896	1
Delay in Project	0.266516803	2
Lack of Quality Control	0.087341886	4
Lack of Management & Administrative Process	0.156143847	3
Need of Time Extension	0.037531249	6
Unfair Distribution of Risk	0.077110606	5
Contractor Being of Poor Means	0.035222713	7

The relative importance & ranking of the factors comes under the influence of contractor is shown in Table 5.3.

Table -5.4: Ranking of Consultant Related Factors.

Consultant Related Factors	Weight	Rank
Excessive Quantity Variation	0.0373948	7
Errors in Design & Drawing	0.288174639	1
Change of Site Condition	0.090642204	5
Insufficient Specification	0.280928313	2
Lack of Knowledge	0.069276818	6
Excessive Quantity of Work	0.094804432	4
Failure of Planning	0.280928313	3

The relative importance & ranking of the factors comes under the influence of consultant is shown in Table 5.4.

Table -5.5: Ranking of Third Party & Human Behavior Related Factors.

Third Party & Human Behavior Related Factors	Weight	Rank
Lack of Team Sprit	0.233793782	2
Poor or Lack of Communication	0.168792261	3
Misunderstanding Among Project Participants	0.107338368	4
Failure of Participant to Adjust Promptly With Changes	0.039161585	6
People protest / Interruption	0.051624608	5
Adverse Weather / Act of God	0.360444979	1
Unforeseen / Unpredictability	0.038844418	7

The relative importance & ranking of the factors comes under the influence of Third Party & Human Behavior is shown in Table 5.5.

Table -5.6: Ranking of Design& Contract Related Factors.

Design & Contract Related Factors	Weight	Rank
Lack of Available Information	0.077838828	3
Ambiguity in Documents	0.234432234	2
Double Meaning in Documents	0.687728938	1

The relative importance & ranking of the factors comes under the influence of Design & Contract is shown in Table 5.6.

5.2. Data Analysis by IMPI

Due to the limited value of Random Consistency Index (RI), it is not easy to calculate the relative importance of all the 30 factors by AHP. Hence in order to overcome this difficulty Importance index (IMPI) process is used to find the relative importance index and ranking them. The Overall ranking and index is giving below in Table 5.7

Table -5.7: Overall Ranking of the Factors.

Total Factors	Weight (In %)	Overall Rank
Unrealistic expectation of owner	35	19
Delay in payments	69.9306	2
Acceleration from owner side	53.333	8
Change of scope by owner	39.8611	16
Complexity in project from owner side	23.625	27
Failure of owner/respond to issues in a timely	24.5	25
Contractor Financial Failure	65.8333	5
Delay in Project	66.1319	3
Lack of Quality Control	30	23
Lack of Management & Administrative Process	42	12
Need of Time Extension	23.5556	28
Unfair Distribution of Risk	39.4167	17
Contractor Being of Poor Means	40.8333	14
Excessive Quantity Variation	42.75	11
Errors in Design & Drawing	35	19
Change of Site Condition	37.8541	18
Insufficient Specification	40.5972	15
Lack of Knowledge	24.375	26
Excessive Quantity of Work	34.0278	21
Failure of Planning	31.3194	22
Lack of Team Sprit	48.4029	9
Poor or Lack of Communication	57.1667	7
Misunderstanding Among Project Participants	41.5556	13
Failure of Participant to Adjust Promptly With Changes	22.5694	29

People protest / Interruption	22.0278	30
Adverse Weather / Act of God	58.5	6
Unforeseen / Unpredictability	26.625	24
Lack of Available Information	65.9167	4
Ambiguity in Documents	46.2222	10
Double Meaning in Documents	80.8889	1

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The Relative importance & overall ranking of all the factors is shown in Table 5.7

6. CONCLUSION

The important conclusion withdrawn from the data analysis is that the contactor related factors are the key sources for creating conflicts and dispute in construction industry and then followed by third party and human related factors.

Based on the relative importance of the groups; Contractor factors ranked as 1st, followed by Third party & human Behavior factors, Owner related factors, then Design & contract related factors, and last is Consultant related factors.

The top five factors which are concluded by data analysis are: Double meaning in documents (80.8889%), Delay in payment by owner (69.9306%), Delay in projects by contractor (63.1319%), Lack of available information in design (65.9167%), and Contractor financial failure (65.8333%).

Thus, this study conclude that for the completion of construction project as conflicts & dispute free, these above factors have to be managed carefully. This investigation likewise gives a decent direction to administrative & management groups and significant data to the managers which can be used to manage their project in a better and efficient way.

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