

Conflict Management in Construction Industry: A Review Paper

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Abstract

Construction industry plays a key role in any country's development. It contributes significantly in the GDP and job market of the country. It is aimed that a successful project should be carefully planned, designed and constructed in a way that it should meet the project goals and above all client's satisfaction. Various factors are involved in achieving a successful project and managing conflicts is a key one. This paper aims to investigate the existing literature available on conflict management in construction industry. A detailed literature analysis has been made for this research. In later stages, a qualitative survey followed by an SPSS analysis has also been made. The study concludes that construction projects are getting complex to meet client needs and sustainability guidelines. A total number of 93 factors are identified and ranked at the later stage of this study. Lack of proper supply chain in construction projects lead to conflicts in this industry, so this has been a topic of research interest for many researchers. This paper helps the practitioners of this industry to make necessary policies and frameworks to properly manage conflicts in construction projects.

Keywords

Conflict, Construction Industry, Dispute, Project Life Cycle

1. Introduction

Construction industry has been experiencing various challenges. Today, client needs change and assuring sustainability & socio-economic features in construction industry; the projects are becoming complex. In such scenarios, numerous stakeholders are involved in the projects. Hence, in such a busy environment where various stakeholders are busy in accomplishing the

tasks assigned and its obvious in such case that a minor mistake or gap in communication; can lead to conflict. Conflict leads to many problems including delay, cost overrun, decreased productivity, more disturbed relationships within stakeholders and so on.

The construction has a complex supply chain with several units involved. There is a contractual relationship between all the main participants. Due to the potentially large number of people involved in the construction process and their different organizational goals and objectives, the potential for variation, external factors, changing conditions and different expectations pose the risk of misunderstandings, misunderstandings and ultimately misunderstandings and conflicts.

Thus, this paper provides an in-depth investigation of conflict, its causes, sources and resolution techniques for conflict management. This paper summarizes the existing body of knowledge available on conflict management in construction industry. It can help the practitioners of construction industry to design & modify their policies and practices in managing this centric issue faced by the industry. It will enhance a healthy professional working environment in construction industry as all parties' rights will be addressed and acknowledged.

2. Literature Research

A comprehensive literature assessment was conducted for this research. The literature covers almost the last two decades of data for conflict management research for the construction industry. Detailed mapping is done in the next phase, which provides a clear view of the features. The construction industry involves the number of people from different regions who have different expertise and different cultures and languages, resulting in poor communication between the people involved in a project, which ultimately leads to conflict between different parts. In such cases, projects are not completed within specified time, cost and allocated budget (Khahro & Ali 2014). Therefore, it is very important to deal with conflicts at an early stage in order to complete a project.

(Femi 2014) defines conflict as an argument in a question about project operations, usually as a result of a discussion of differences between two or more parties, understanding the situation.

Conflict occurs when a person's behavior interferes with or interferes with another action.

(Awakul 2002) & (Saud Almutairi 2015) define conflict as a process in which one party perceives that one's interests are opposed or otherwise affected. According to them there wouldn't be conflicts in the perfect construction world, but perfect construction world does not exist. (Farooqui & Azhar 2014) described construction projects in a very complex and dynamic environment where unpleasant events such as claims usually occur. (Li et al. 2012) also pointed out that the confrontations and disputes may arise due to the diverse and conflicting interests of the stakeholders.

(Farooqui et al. 2012) mentioned that less educated and professional staff is running construction sites fail to do their work correctly or efficiently within given time period, then dispute occur.

(Yusof et al. 2011) specified that conflict as a state of opposition, disagreement between persons or a group of persons over ideas, interests, beliefs, feelings, behavior or goals. (Gitau 2016)

concluded that project team must ensure the effective coordination and communication between the team members of the project to avoid conflicts. (Wei et al. 2016) also suggested that the local issues should be investigated and must be addressed directly by the project managers to avoid conflicts. (Rauzana 2016) suggested that the conflicts between the project participants must be managed effectively to avoid losses. Hence, it is of extreme importance to identify the probable causes of those conflicts in order to prepare a good management plan to complete any project as a successful endeavor (Elmabrok et al. 2016). Annexure 1 shows a detailed mapping of factors identified in literature review.

3. Research Methodology

A detailed literature review has been made for factor identifications in this research. The identified factors were processed through a short pilot study. Experts' opinion during pilot study is amended in final set of questionnaire which was send to numerous practitioners working in construction industry via hard mail and emails. The respondents were requested to share their experience to assist the priority of factors for conflict management in general and with specific reference to construction industry of Pakistan. Finally, 159 questionnaires were considered for this research which was received during data collection period.

Average Index (AI) method has been successfully used for data analysis of such decision-making problems. Therefore, same is used for data analysis of this paper. Average Index is indexed as follows:

$$\text{Average Index} = \frac{\sum_{i=1}^5 a_i x_i}{5 \sum_{i=1}^5 X_i}$$

Where, a_i = Constant expressing the weight given to i , X_i = variable expressing the frequency of the response for:

4. Results & Discussion

It has been observed that few researchers did a detailed analysis of conflict management throughout project life cycle. This research is an addition to the existing body of knowledge for conflict management in construction projects in general and specifically for Sindh, Pakistan.

Table 1 shows the most frequent causes of conflicts occur in construction industry.

Table 1: Most Frequent Causes of Conflicts in Construction Industry

Frequent Factors	Rank
Poor communication/ lack of communication/ Miscommunication	1
Failure of payment/ Delay in payments/ Payment delays /Delay in progress payment by owner	2
Lack of communication procedures/ Lack of communication between construction parties/ practitioners	2
Design errors and specification/ Design errors made designer/ Change due to design errors by designer/ Errors and omissions in design	3
Differing site conditions/ Site conditions	4
Unclear contract terms/ Poorly written contract/ Ambiguities in contract documents/ Excessive contract variations	4
Changes in work/ Change of scope of works as a result of changes in client's requirements/ Change of scope of works due to client requirement instability	4
Change orders/ excessive change orders/ change orders by owner during construction	4
Inadequate contractor's experience/ Inexperienced contractors/Inadequate contractor experience causing error/ incompetent contractor	5
Poor estimation practices/ Inaccurate estimation practices/ Estimation errors/ error of pricing or costing	5
Risk allocation/ Unclear risk allocation/ Unfair risk allocation/ imbalance in risk allocation	5
Errors in drawings/Insufficient working drawing details/ Defective drawings	5
Weather / Adverse weather conditions/ hot weather effect on construction activities	5
Mistakes in design/ Errors in project documents/ Mistakes and discrepancies in design documents	6
Negligence	6

Errors in bill of quantities/ Inaccurate bill of quantities	6
Errors in specification/ Use of out dated specifications/ Inadequate/ incomplete specifications/ defective specifications	6
Financial failure of contractor/ Main contractor financial problems/ difficulties in financing the project by contractor	6
Poor decision making/ delay in decision by owner/ slowness in decision making process by owner	6

In light of the findings of Table 1 the key factors which have profound influence in creating conflicts have been identified. It has been observed that “Poor communication/lack of communication/ Miscommunication” is one of the major cause leading to conflict. Second in the line, two factors i.e “Failure of payment/ Delay in payments/ Payment delays /Delay in progress payment by owner” and “Lack of communication procedures/ Lack of communication between construction parties/practitioners” both have equal influence in causing conflict in the construction industry. Design errors and specification/ Design errors made designer/ Change due to design errors by designer/ Errors and omissions in design” are ranked at third influence and so on for others.

To get a clear view point, Figure 1 shows a pilot analysis of key causes leading to conflicts in construction industry. Following 8 causes from body of 93 causes have very substantial contribution in causing conflicts.

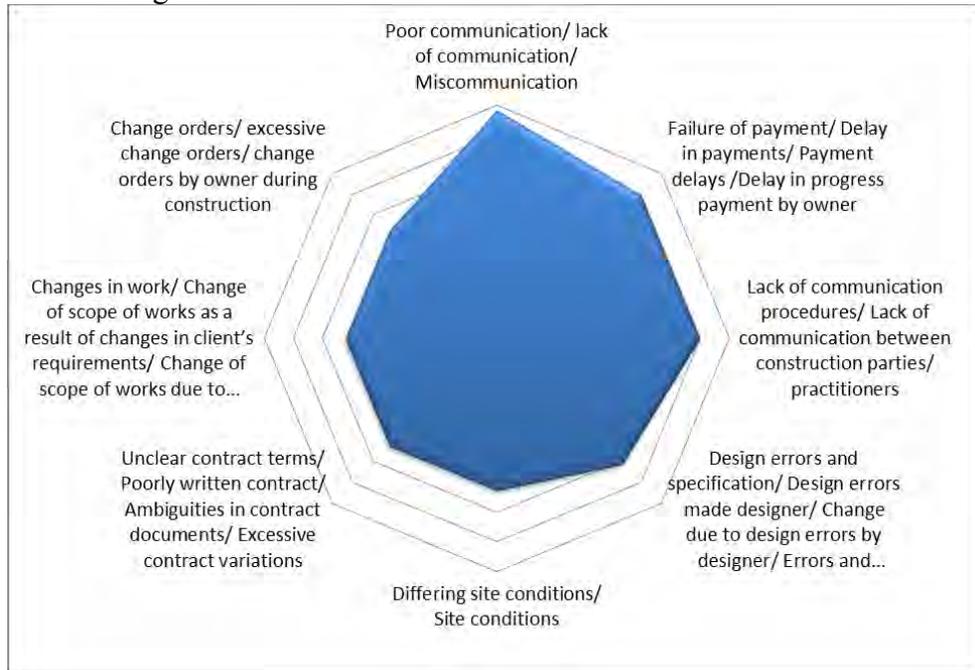


Figure 1: Most Critical Causes of Conflicts in Construction Industry

All identified causes of conflicts in this research are categorized in to 10 different groups and these groups are called as conflict causal areas. Following Table 2 shows the most important conflict causal areas as per project phases.

Table 2: Rank of Conflict Causal Area Leading to Conflicts at different Stage of Project

Conflict Area with Stage	Rank
Delays in Payments during Construction Stage	1
Poor Communication during Construction Stage	2
Excessive Contract Variations during Construction Stage	3
Delays in Payments during Post Construction Stage	4

Public Interruption during Construction Stage	4
Differing Site Condition and Limitations during Construction Stage	5
Contractual Claims during Construction Stage	6
Design Errors during Design Stage	7
Errors in Project Documents during Construction Stage	8
Design Errors during Construction Stage	9
Contractual Claims during Post Construction Stage	10
Multiple Meanings of Specifications during Construction Stage	11
Differences in Evaluation during Construction Stage	12
Differences in Evaluation during Post Construction Stage	13
Public Interruption during Post Construction Stage	14

As per the findings in Table 2, the most important conflict causal areas as per project phases are identified. It is analyzed that delays in Payments during construction stage is one of the major causal area and project stage. Similarly, Poor Communication during Construction Stage is ranked at second and Excessive Contract Variations during Construction Stage” stands at third major causal area and project phase.

In the last phase of this research, a mapping of suitable conflict resolution techniques has been made in relation with project life cycle as mentioned in Table 3.

Table 3: Rank of Conflict Causal Area with Project Stage

Remedial Measure	Pre Design Phase	Design Phase	Construction Phase	Post Construction Phase
Collaborating	1.7	2.1	2.8	1.5
Compromising	1.6	2	2.6	1.4
Competing	1	1.2	1.6	1
Avoiding	1.2	1.2	1.5	1.1
Forcing	1.1	1	1.3	1
Smoothing	1.7	1.6	1.8	1.6

5. Conclusion & Suggestion

Reviewing a vast literature including qualitative, quantitative surveys and case studies from various construction industries of the world led to identification and ranking of factors initiating conflicts. Survey and analysis over the data collected and scrutinized in Pakistan. It is concluded that Poor communication, Delay in progress payment by owner, Lack of communication between construction parties, Errors and omissions in design are the key reasons of conflicts in this industry. Current research abridged the factors into conflict causal groups and found that Delays in Payments, Poor Communication, and Excessive Contract Variations during construction stage are the leading categories causing conflicts. Further, a qualitative study was conducted by various stakeholders to highlight suitable remedial approaches. Collaborating and compromising have been found to be the most suitable solutions to avoid conflicts. It is recommended and suggested to the policy makers of the concerned industry to review the respective literature and a little addition to it in the current research form; find some grace as per the analyzed remedial resolutions in pre-construction, during and post-construction phases. The organizations consisting of numerous stakeholders from all levels of construction industry are shaped up to deal with such situations (conflicts resolution).

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S#	Causes															Nency	Total									
		Pinar (2016)	Ibrahim (2016)	Elmagdobi (2016)	Anita (2016)	Ejohwomu et al. (2016)	Remon et al. (2016)	Yachara and Iakheha (2015)	Almutairi et al. (2015)	Faizan and Nadeem (2015)	Sigitas and Tomas (2014)	Rizwan et al. (2014)	Emre and Pinar (2014)	Femi (2014)	T.H.A and S.H.Khahro (2014)			Rizwan et al. (2012)	Borvorn (2011)	Jaffer et al. (2011)	Peter et al. (2010)	Tommy et al. (2006)	Acharya et al. (2006)	Saadi a asaf (2006)	Cheryl et al. (1994)	
1	Lack of funds			1		1								1												3
2	Failure of payment/ Delay in payments/ Payment delays /Delay in progress payment by owner	1	1								1	1		1			1					1			1	8
3	Differing site conditions/ Site conditions		1						1			1		1							1	1				6
4	Unclear contract terms/ Poorly written contract/ Ambiguities in contract documents/ Excessive contract variations	1	1									1		1		1		1								6
5	Changes in work/ Change of scope of works as a result of changes in client's requirements/ Change of scope of works due to client requirement instability	1		1		1								1						1				1		6
6	Contradictory and errors of information in contract documents/ Violating conditions of the contract	1														1				1						3
7	Plans and specifications that contain errors/ Differences in interpretation of plans and specifications	1	1																							2
8	Poor communication/ lack of communication/ Miscommunication								1	1		1		1	1			1			1	1		1	9	
9	Change orders/ excessive change orders/ change orders by owner during construction		1						1								1				1	1	1		6	
10	Inflation / market inflation		1													1					1				3	
11	Design errors and specification/ Design errors made designer/ Change due to design errors by designer/ Errors and omissions in design				1		1	1	1			1		1						1					7	
12	Lack of communication procedures/ Lack of communication between construction parties/ practitioners		1	1	1				1				1	1		1				1					8	
13	Evaluation of quality and quantity of completed works/ Evaluation of completed works		1														1								2	
14	Accuracy of project cost estimate		1														1								2	
15	Mistakes in design/ Errors in project documents/ Mistakes and discrepancies in design documents		1											1		1						1			4	
16	Negligence			1							1			1								1			4	
17	Inadequate contractor's experience/ Inexperienced contractors/Inadequate contractor experience causing error/ incompetent contractor		1				1													1	1	1			5	
18	Poor estimation practices/ Inaccurate estimation practices/ Estimation errors/ error of pricing or costing		1		1				1										1					1	5	
19	Cash problems during construction		1																						1	
20	Poor financial projection on client's side			1		1								1											3	
21	Risk allocation/ Unclear risk allocation/ Unfair risk allocation/ imbalance in risk allocation											1	1		1					1	1				5	
22	Errors in bill of quantities/ Inaccurate bill of quantities			1										1		1				1					4	
23	Liquidated damages	1																							1	
24	Wrong interpretation of reports			1																					1	
25	Lack of necessary permits from authorities			1																					1	
26	Errors in drawings/Insufficient working drawing details/ Defective drawings			1							1				1		1							1	5	

