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Building a Management System to Control the Construction Claims in Iraq

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Abstract

The paper deals with claims in construction projects in Iraq and studies their types, causes, impacts, resolution methods and then proposes a management system to control the impacts of claims. Two parts have been done to achieve the research objective (theoretical part and practical part). The findings showed that the main types of the claims are extra work claims, different site condition claims, delay claims and the main causes of the claims are variation of the orders, design errors and omission, delay in payments by owner, variation in quantities and scheduling errors. The claims have bad impacts on the cost by increasing (10% to 25%) and also on the duration of the project by increasing from (25% to 50%).The negotiation is the main method which is used to resolve the claims in the construction project in Iraq. Finally, the proposed claims management system is developed to control the causes of the claims during the preconstruction phase and construction phase.

Keywords: *Claims, Construction projects, Controlling, Delay, Management, System, Variation Orders.*

1. Introduction

Today, projects of construction are the subject of more claims than in any other time. The high competition has forced contractors to bid projects with minimum profits in order to stay in business. In addition to their multiparty nature the projects are becoming more complex and risky.

Claims commonly arise between the parties to construction contracts (owner, consultant, and contractor). Claims in construction project are considered by participants of the project to be one of the most unmanageable and unpleasant events of a project (Ho and Liu 2004). This can be caused a many problems such as; delays, changes, unforeseen circumstances, insufficient information, and conflicts. Claims might be made for loss and expense, extension of time, liquidated damages and so on. The contract should set out what can constitute a claim and how it should be dealt with. There may also be claims associated with the appointment of consultants. The main objectives of this study is to identify the characteristics of claims building projects in Iraq including ; types , causes, impacts and Proposing an efficient system for managing claims in building projects in Iraq.

2. Overview of Construction Claims

Many researchers had taken place on claims in the construction project and the following are the main researches: Ala'a S. Shdiefat (2013) study claims causes that related to (owners , engineers , contractors and other) and also determine the impacts of claims in projects in, the research findings showed that the main causes were the changes related to owner, while the delay by the contractor was the second cause, the

claims impacts on the cost by increasing 10% to 25% of total cost , and on time by increasing 25% to 50%.

According to Zaneldin (2006) the construction industry in the United Arab Emirates is considered the largest single industry, yet, it is also very complex and the most fragmented industry as it involves multidisciplinary participants. In this multidisciplinary environment, claims appear to hinder the completion of construction and cause delays in delivering projects. This research presents the results of a study of the types, causes, and frequency of construction claims in the emirates of Dubai and Abu Dhabi in UAE using a data from 124 claims for a variety of projects in the two emirates. The data were analyzed and the results of this analysis along with recommendations on how to reduce/prevent claims in construction are then presented.

Al-Momani (2000), This study is to investigate causes of delays on 130 projects in Jordan and to aid the mangers of construction projects in establishing adequate evaluation of the contract award by using quantitative data. The Results of this indicated main causes of delay in construction of public projects relate to planners, client changes, climate, site conditions, late conveyances, financial conditions and increment in amount. The presence of these factors has an effect on the completion at the time specified. Findings suggested that special attention to factors identified can help industry practitioners by minimize the risk of contract disputes.

Frank DK. (2010) study the causes of delay in construction projects in Ghana and identify the important according to the project participants. Thirty-two possible causes of delay were identified. The list of delay causes was subjected to a questionnaire survey for the identification of the most important causes of delay. The results of the study show that the respondents agree that financial group factors ranked highest. The budgetary gathering variables were deferral in respecting installment testaments, trouble in getting to credit and change in costs. Materials bunch components are second trailed by planning and controlling elements.

Wilkinson, (2001. This research about project management companies in New Zealand. The major issues confronted were relationship-based. The examination in this paper found that venture administration organizations need to conquer issues in their associations with different experts on the venture group and with the customer. This study discusses the problems by using data collected from a survey to project management companies in the New Zealand construction industry and examined how project management companies saw their role, their experiences of managing construction projects and suggestions for improving relationships This examination recommends that the issues confronted by organizations in New Zealand are probably going to be worldwide and accordingly any arrangement proposed can be connected to different nations.

3. Methodology of Work and Data Collection

This part of the study narrates the manner in which the research objective of the study would be illustrated. This section discusses the data collection process, the sampling technique deployed and the data analysis technique to be used in the following steps. Data collection generally involves two methods primary data collection and secondary data collection. Primary data collection refers to the information which is gathered from the owner's documents. Secondary data refers to information that is collected from the respondents; in this case the respondents are project managers of construction projects. The respondents would be given research questionaries' to fill and this data would be utilized for the purpose of data analysis. Data collected, reported and discussed. The questionnaire survey was carried out, the results that have been obtained from processing of questionnaires using statistical package for social sciences SPSS.Finally proposed a management system to control causes and impacts of claims.

4. Analysis of Existing Claims in Construction Projects in Iraq

A real data has been collected from existed projects to determine the types, causes, impacts of claims. Claims information have been collected includes: project duration, project budget, causes of claims, resolution method for claims and their impacts on the projects time and cost as follows:

4.1 Project A

The total budget of the project is 15,000,000,000 ID with 2 years original duration.

Table (4.1) shows the causes of claims which happened in this project and their impacts on project cost and time.

Table 4.1,
List of claims causes with their total impacts in project (A) as submitted by the contractor.

claims no.	causes of claims	amount of claims in(ID) as submitted by the contractor	amount of claims in (ID) as settled	amount of claims in (days) as submitted by contractor	amount of claims in (days) as settled	methods of resolving claims
1	variation orders					negotiation
2	owner attitudes	3,000,000,000	1,500,000,000	100	100	litigation
3	design errors and omissions					

4.2 Project B

The total budget of the project is 5,000,000,000 ID with 8 months original duration.

Table (4.2) shows the causes of claims which happened in this project and their impacts on project cost and time.

Table 4.2,
List of claims causes with their total impacts in project (B) as submitted by the contractor.

claims no.	causes of claims	amount of claims in(ID) as submitted by the contractor	amount of claims in (ID) as settled	amount of claims in (days) as submitted by contractor	amount of claims in (days) as settled	methods of resolving claims
1	variation in quantities					negotiation
2	oral change orders	1,000,000,000	300,000,000	90	90	
3	design errors and omissions					

4.3 Project C

The total budget of the project is 44,000,000,000 ID with 4 years original duration.

Table (4.3) shows the causes of claims which happened in this project and their impacts on project cost and time.

Table 4.3,
List of claims causes with their total impacts in project (C) as submitted by the contractor

claims no.	causes of claims	amount of claims in(ID) as submitted by the contractor	amount of claims in (ID) as settled	amount of claims in (days) as submitted by contractor	amount of claims in (days) as settled	methods of resolving claims
1	delay in payment by owner					negotiation
2	variation orders	5,000,000,000	2,000,000,000	320	320	litigation
3	design errors and omissions					

4.4 Project D

The total budget of the project is 14,746,450,000 ID with 450 days original duration. Table (4.4) shows the causes of claims which happened in this project and their impacts on project cost and time.

Table 4.4,
List of claims causes with their total impacts in project (D) as submitted by the contractor

claims no.	causes of claims	amount of claims in(ID) as submitted by the contractor	amount of claims in (ID) as settled	amount of claims in (days) as submitted by contractor	amount of claims in (days) as settled	methods of resolving claims
1	variation in quantities					negotiation
2	delay in payment by the owner	55,000,000	55,000,000	240	240	
3	estimating errors					

4.5 Project E

The total budget of the project is 19,300,000,000 ID with 660 days original duration. Table (4.5) shows the causes of claims which happened in this project and their impacts on project cost and time.

Table 4.5,
List of claims causes with their total impacts in project (E) as submitted by the contractor

claims no.	causes of claims	amount of claims in(ID) as submitted by the contractor	amount of claims in (ID) as settled	amount of claims in (days) as submitted by contractor	amount of claims in (days) as settled	methods of resolving claims
1	delay by the owner					negotiation
2	variation orders	100,000,000	0	120	120	mediation
3	oral change order by owner					

4.6 Analysis of the Causes of Claims for the Studied Projects

The analysis of the five selected project data showed that the highest frequent repetition of claim causes, as presented in Table, (4.6) is (variation orders and design errors and omission).

Table 4.6,
List of claim causes in the studied project.

NO.	Causes of claim in construction projects	Total repetition
1	variation orders	3
2	owner attitudes	1
3	design errors and omissions	3
4	variation in quantities	2
5	oral change orders	2
6	delay in payment by owner	2
7	estimating errors	1
8	delay by the owner	1

4.7 The Resolution Methods of the Claims

Table below shows the resolution methods for the five projects. The table shows that the owner and the contractor resolved their claims through the negotiation process which is the main method of resolution.

Table 4.7,
Repetition of resolution method in the selected project.

NO.	methods of resolving claims	Total repetition
1	negotiation	5
2	litigation	2
3	mediation	1

5. Statistical Analysis and Discussion of Tabulated Answers

The questionnaire was formulated based on the literature review, the questionnaire was sent to a selected number of project parties (owner, contractors, and consultant), and after the questionnaire responses were collected the next step was analyzing the tabulated answers statistically. Weighted arithmetic mean and standard deviations were calculated and used to evaluate the responses:

5.1 The Sample Size and Sample Characteristics

Table (5.1) shows the details of research sample

Table 5.1,
Research Sample

Types of participants	NO. of forms send	No. of forms Responded to
Owner	45	29
Contractor	40	23
Consultant	30	19
Total	105	71

The characteristics of sample have been identified from the responses of the participants as follows;

1- The academic qualification of participants as (45) of respondents holding BSc degree , (20) holding MSc degree and (6) holding Ph. D. degree.

2- The experience level among the paticipants showed that (9) have experiences between (6-10) years , (23) have experiences between (11-15) and (38) have experiences more than 15 years.

5.2 The Reliability's Analysis of Claims

The Cronbach's Alpha is utilized to appraise the robustness of any research instrument. Any value above 0.70 is reliable especially for exploratory study (Nunnally, 1978), Table (5.1) shows the value of reliability for each causes which considered to be high and appropriate for the study purpose.

Table (5.2),
Reliability Statistics for the Claims Causes

Items	Cronbach's Alpha	N of Items
Owner	98%	6
Consultant	92%	4
Contractor	95%	6
Overall	96%	16
Reliability Statistics for the Claims Resolution Methods		
Items	**Cronbach's Alpha**	**N of Items**
Overall	86%	5
Reliability Statistics for the Claims Types		
Items	**Cronbach's Alpha**	**N of Items**
Overall	89%	11

5.3 Data Analysis for Types of Claims

Table (5.3) shows the highest type of claims are (Extra work claims) with a mean (3.8).

Table (5.3),
Ranking for the Types of Claims

No.	Types of Claims	N	Mean	Std. Deviation	Ranking
1	Contract Ambiguity Claims	74	3.1	1.26087	8
2	Delay Claims	74	3.6	1.32529	2
3	Acceleration Claims	74	3.4	1.44375	6
4	Changes Claims	74	3.5	1.28125	4
5	Extra Work Claims	74	3.8	1.36817	1
6	Different Measurements Pricing Claims	74	3.2	1.41924	7
7	Different Site Condition Claims	74	3.5	1.24074	3
8	Damage Claims	74	3.4	1.28414	5
9	Negligence Claims	74	2.5	1.43352	11
10	Termination Claims	74	3.1	1.31716	9
11	Inefficiency and Disruption Claims	74	2.7	1.60709	10

5.4 Data Analysis for Causes of Claims

Tables (5-4) to (5-6) shows the ranking of the causes of claims which is related by the (owner, consultant, contractor).

A. Owner

Table (5.4),
Ranking for the Causes Related to the Owen

NO	Causes Related to Owner	N	Mean	Std. Deviation	Ranking
1	delay caused by owner	74	3.7	1.39736	3
2	changes orders	74	3.8	1.30927	2
3	Inducements changes orders by owner	74	3.02	1.39444	6
4	delay in payments by owner	74	4.1	1.08991	1
5	termination of contract	74	3.4	1.21906	4
6	planning errors	74	3.06	1.31723	5

B. Consultant

Table (5.5),
Ranking for the Causes Related to the Consultant

NO	Causes Related to Consultant	N	Mean	Std. Deviation	Ranking
1	estimating errors	74	3.8	1.35163	3
2	scheduling errors	74	3.8	1.21275	2
3	design errors	74	4	1.02034	1
4	poor written contracts	74	3.7	1.39736	4

C. Contractor

Table (5.6),
Ranking for the Causes Related to the Contractor

NO	causes related to Contactor	N	Mean	Std. Deviation	Ranking
1	variation in quantities	74	4.0	1.12130	1
2	subcontractor problems	74	3.5	1.46191	3
3	delay caused by owner	74	3.7	1.26848	2
4	contractor financial problems	74	3.09	1.32592	5
5	bad quality of contractor's work	74	3.4	1.25173	4
6	changes in material , labor and machinery costs	74	1.6	.86693	6

5.4. Data Analysis for Resolution Methods of Claims

Table (5.6) shows the resolution methods. The table shows that the owner and the contractor resolved their claims through the negotiation process.

Table (5.7),
Ranking of Resolution Method of the Claims

NO	Method of resolving claims	N	Mean	Std. Deviation	Ranking
1	negotiation	74	4.0	1.15865	1
2	mediation	74	3.6	1.26175	3
3	dispute adjudication boards	74	3.6	1.20163	2
4	arbitration	74	3.4	2.73608	5
5	litigation	74	3.4	1.44375	4

5.6. Data Analysis for Impacts of Claims

Tables (5.7, 5.8) and Figure (5.1, 5.2) show the effects of claims that caused the project cost and time to increase.

Table 5.8,
Percentage of Claims impact on the project cost

Increase of project completion cost Classes	N	%
less than 10%	17	0.22973
From (10%-25%)	33	0.445946
From (25%-50%)	15	0.202703
From (50%-75%0	6	0.081081
From (75%-100)	3	0.040541
more than 100%	0	0
Sum.	74	1

Table 5.8,
Percentage of Claims Impact on the Project Time

A claims increase project time to Classes	N	%
less than 10%	16	0.216216
From (10%-25%)	21	0.283784
From (25%-50%)	23	0.310811
From (50%-75%0	6	0.081081
From (75%-100)	5	0.067568
more than 100%	3	0.040541
Sum.	74	1

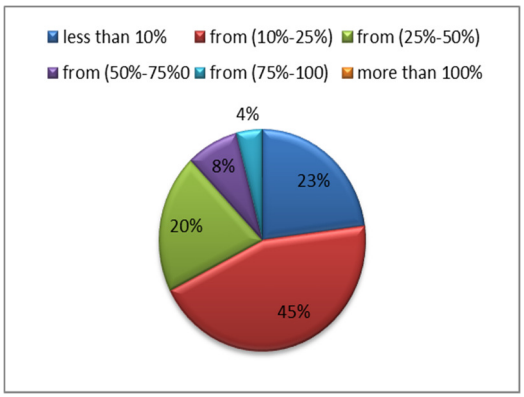

Fig. (5.1): Percentage of Claims Impact on the Project Cost

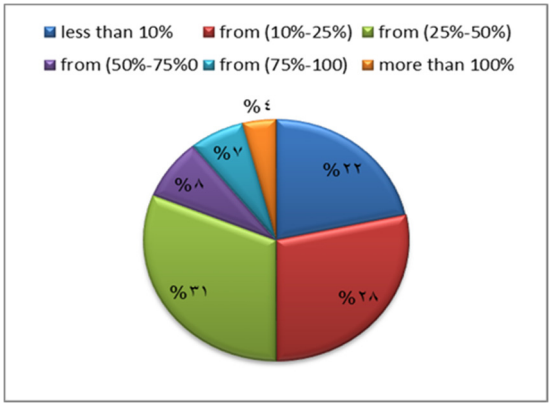

Fig. (5.2): Percentage of Claims Impact on the Project Time.

6. Proposed of Claim Management System for Construction Projects

Management system of claims is proposed to have efficient procedures for minimizing the claims impact (cost and time), the proposed management system has been divided into two stages (preconstruction phase and construction phase) which are shows in figure (6.1) and (6.2).

6.1 Management System during the Preconstruction Phase

This phase will be achieved by the following steps:

1. Owner must select a qualified consultant (the consultant choosing should not depend on lower price.
2. Consultant must review the contract documents in related to specifications, drawings, designs; bill of quantity .the aim of this revision is to identify any ambiguities in contract documents.
3. Consultant should meet the owner for reviewing his needs and orientations.
4. Consultant has to prepare full documents for changes (addition and omissions). Moreover he has to provide final set of modified contract documents to come out with final impacts of changes on project completion cost and duration.
5. Owner has to give his approval for the new cost and duration.
6. The Qualified Based Selection QBS should be a basic procedure in selecting the qualified contractor, both of performance and price should be the base of selecting the contractors.

6.2 Management System During The Construction Phase

This phase will be achieved by the following steps:

1. Consultant has to establish a documentation center. The documentation center is keeping all transaction and correspondence between the project parties.

2. The contractor has to assign a project manager; the project manager responsibility is to assign a construction manager CM, the CM responsible for mange, claims, variation orders, and any technique issues related to works.

3. The contractor should then notify both of the owner and the consultant about the causes of any claims, if the contractor fails to notify the owner and the consultant, he will then lose his right for any compensation.

4. The construction manager shall prepare all the documents of claim.

5. Contractor has to update the information about the claim through his project manager and CM.

6. Engineers have to analysis documents of claims with contractors of the project and CM.

7. If the contractor accepted the decision of the engineer, a copy should sent to the owner to paid and if not the claim then goes through any method of resolution.

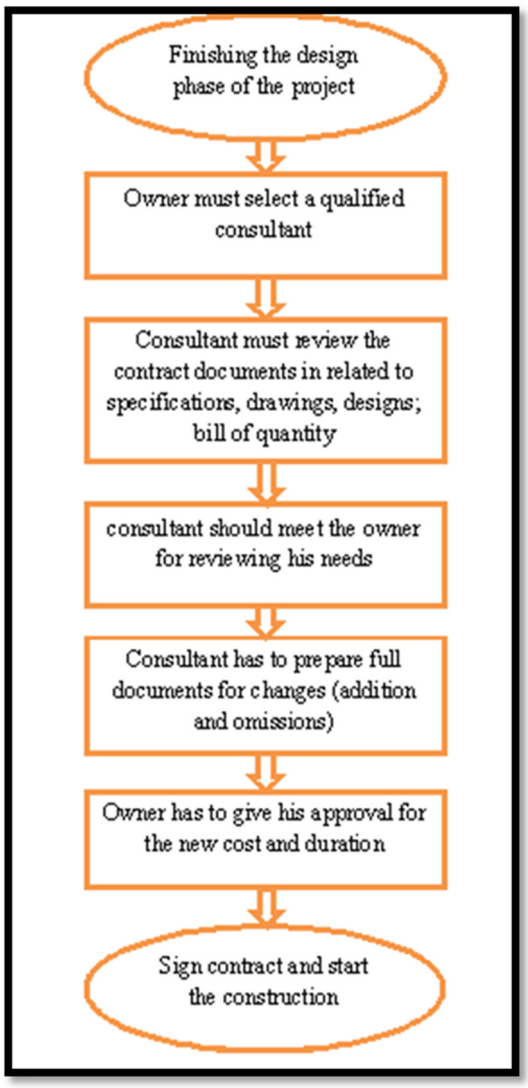

Fig. (6.1): claims Management System During The Preconstruction Phase

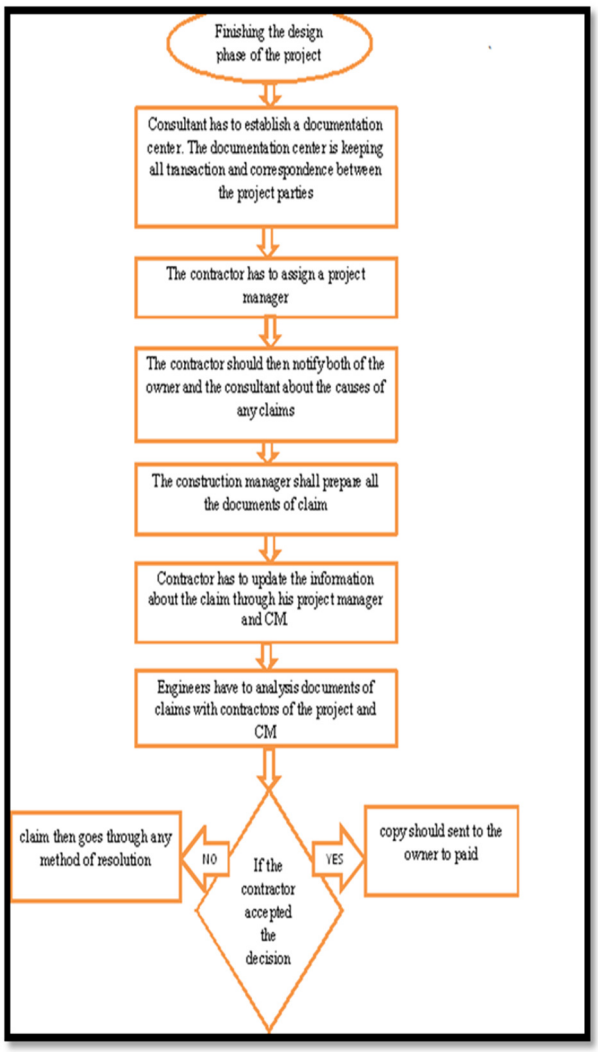

Fig. (6.2):claims Management System During The Construction Phase

8. Conclusions

The main types of claims in construction projects in Iraq are (extra work claims, different site condition claims, delay claims, Changes claims, and Damages claims) , and this types of claims caused by many causes which are the main five causes of claims in construction project in Iraq are (Variation orders, design errors and omission, delay in payments by owner, variation in quantities, scheduling errors). The main method which are used to resolving claims in construction project in Iraq is the negotiation method. There is an impact of claims on the project cost between (10%-25%) and on the project time between (25%-50%) and a claim management system should proposed to have efficient procedures for minimizing the claims impact (cost and time) during (preconstruction phase and construction phase) to reduce the claims in construction project in Iraq.

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أعداد برنامج ادارة للسيطرة على التعويضات الحاصلة في مشاريع البناء في العراق

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الخلاصة

يتناول هذا البحث دراسة التعويضات (المطالبات) في مشاريع البناء في العراق ودراسة انواعها واسبابها وتأثيراتها والطرائق المتبعة لحلها ومحاولة اعداد نظام الادارة لغرض التقليل من التأثيرات الحاصلة نتيجة المطالبات (زيادة الوقت والكلفة) , تم الاستناد في هذه الدراسة على الجزء النظري والعملي، ان نتائج هذه الدراسة اظهرت ان اهم انواع المطالبات الحاصلة في مشاريع العراق هي (مطالبات الاعمال الاضافية، مطالبات اختلاف ظروف موقع العمل، مطالبات التأخير) وان اهم اسباب هذه المطالبات هي (الاوامر الغيارية، اخطاء في اعداد التصاميم، تأخير في الدفعات المالية من قبل المالك، اختلاف في كميات الاعمال، اخطاء في برمجة المشروع). ان المطالبات في مشاريع البناء في العراق اظهرت تأثيرات سلبية من حيث زيادة في كلف المشاريع تصل بحدود من ١٠% الى ٢٥% وزيادة في المدة الزمنية للمشروع بين ٢٥% الى ٥٠%، واظهرت النتائج ان طريقة المفاوضات كانت هي الطريقة الغالبة في حل المطالبات في مشاريع البناء ومن خلال ما ورد اعلاه تم اعداد نظام ادارة للتقليل من تأثيرات المطالبات في مشاريع البناء في العراق.