EFFECTS OF CONSTRUCTION DELAYS ON CONTRACTOR REPUTATION IN THE NIGERIAN CONSTRUCTION INDUSTRY

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DEDICATION

I dedicate this work to my mother Late Malama A’ishatu Muhammad, father Late Malam Adamu Shehu and my sister Late Khadija Adamu Shehu.
ACKNOWLEDGMENT

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ABSTRACT

Development of economy in every nation is based on construction projects undertaken through several types of contracts. However, construction industry is suffering from delay phenomenon. Effects of delay in construction projects seem critical and if not handled appropriately, whereby it could result to wastage and less utilization of resources. This has contributed to negative impact on stakeholders in the construction industry. This research aims to identifying the effect of common delay factors on the contractor reputation. The objectives were achieved by examining the effects of construction delays on contractor reputation in the Nigerian construction industry through a systematic analysis. Structured questionnaire was used to 140 contractors that actively in the construction industry with 65% response rate. Several analyses such as mean, ranking, correlation, t-test and analysis of variance (ANOVA), were used to analyze the data. The result shows that quality of work and inability to access foreign loans were the most effecting factors on contractor reputation. Contrastingly, good communication and safe healthy environment were the most significant factor that could promote reputation of contractor. The homogenous analyses indicate that there are significant different perceptions of respondents on some few variables. The research confirmed that delay factors have effects on contractor reputation and there is need to good communication systems for significant performance to be obtained.
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CHAPTER 1

INTRODUCTION

1.1 Introduction

This section of the research focuses on the introduction that serves as the background to the research. The background formed a clear focus of the problem statement. Research questions, aim and objectives of the research are going to be discussed. The section also discusses scope and significant of the research. The last part of the chapter is the organization of chapters.

1.2 Background of the Research

Development of economy in every nation is based on construction projects that are undertaken through several types of contracts. Nowadays, the objectives of construction projects are challenging to be achieved as the numbers of projects delay are increasing. Construction industries are responsible for construction projects but are suffering from delay phenomenon. This delay phenomenon is a common problem that caused by various factors, which affects the effort of project performance (Gunduz, Nielsen and Ozdemir, 2013).

Commonly, construction projects fall into cost and time overrun due to issues associated with delays. Delay can cause problem from prolonging of schedules, additional cost of the project and endangering the quality of the workmanship (Gonzalez, et al., 2013). However, if projects is delayed, it affects the cost thereby exposing the contractor to several lost.
In view of the foregoing reasons above, the effect or implication of these factors have to be defined in relation to the contractor’s image or reputation, which invariably determine the contractor’s reliability. Reputation is a valued item that is difficult to be acquired. It is a perceptual measure of a society and is naturally subjective and pronounces the complete image the society has developed with all of its stakeholders and components (Roberts, 2009).

Looking at reputation in the business perspective, it is a perception of earlier actions of the organization without isolating future behavior viewed in the framework of what others are undertaking in the market place (CIMA, 2007). It is obviously clear that, perception of people on the previous actions and future strategies in gaining its opportunities of company or organization matters.

Carrying out reworks activity is one of the factors that affect contractor’s reputation and, therefore, it has the tendency of attracting clients to contractors and possibly keeps clients away from contractors too. Corporations that have much record of reworks during construction are usually not invited for bidding. Not only contractor with a bad track record to lose the opportunity of forthcoming trade with the present client, the contractor can also lose the chance to win other projects for the reason that personnel are so busy with rework and makes them not available to pursue new construction work (Moore, 2012).

Therefore, this study aims at identifying the effect of common delays and to examine the implications on contractor’s reputation. Being that reputation is a most valuable item that has a direct link with human being’s personality, retaining and preserving it is costly and very prestigious.

1.3 Problem Statement

Delay in construction affects the key players in the construction industry including the contractor, client and consultant. The Nigerian construction industry has suffered many setbacks in terms of completing projects on time. Furthermore, most of the construction projects in Nigeria experienced delay, which lead to the abandonment of the project (Mohammed and Isah, 2012). Therefore, this becomes one of the reasons that motivate the research to contribute in the delay issue. In addition to other countries, Malaysian construction industry has been affected by project delays for
many years (Mehdi Riazi, Skitmore and Cheung, 2011). It is significantly interesting, to study the delay effects in construction industry because research shows that seven (7) out of ten (10) projects in Nigerian suffered delay in their execution (Ameh and Ogundare, 2013).

It was also stated globally, many problems related to time and cost overrun quite often affects the construction industry. The factors causing delay were investigated through contractors and consultants in the Malaysian construction industry. Previous literature reviews revealed that, design problems, materials and site management, and construction defects appeared to be the most common factors to project delay (Memon, Abdul Rahman and Abdul Azis, 2011).

Furthermore, delays in the construction industry also potentially caused by several other factors (Ali, et al., 2010). It includes labor shortage, contractor’s financial difficulties, and construction mistakes and defective of works (Ali et al., 2010). The research also highlighted extension of time and cost overrun as the most significant factors. The research mentions that, delay affects contractor reputation.

The effect of delay phenomenon on the contractor’s reputation in the construction industry is common. According to Mahamid, Bruland and Dmaid (2012), construction delays have negative effects on clients, contractors and consultants in terms of growth in confrontational relationships, distrust, litigation, arbitration, cash flow problems and general feeling of unease toward one another. Reputation is much significance to the firms or corporations. De Marcellis-Warin and Teoderesco, (2012), stated that reputation is an elusive asset that is made up over time to signify the importance and expectation that stakeholders have for the company. Therefore, construction delay is a problem that affects the key players in the construction industry and the effects goes up to mistrust between the parties involved.

Therefore, Iruobe, et al. (2012) mentioned that effects of delay in construction projects are serious and if not handled appropriately, it could result to wastage and underutilization of resources. These have negative impact on all stakeholders in the construction industry. Mohammed and Isah (2012) stated that stakeholder’s loss of interest, waste of money and time, falling into authorities blacklist and declining of reputation as effects of delays on the Nigerian construction industry. However, this disorder that is affecting Nigerian construction has to be investigated. Full assessment of
the effects of delay could be made and contribution towards reducing the effect to be accessed.

Reputation is a valuable ingredient that assists in the development of companies. According to Kendrick, (2013), company’s reputation form parts of it elusive assets that comprise brand, human capital, kindness and know how. Therefore, looking at reputation and its gravity can only be possessed through behaviors and attitudes, which society, organization or individual dispenses to their counterparts. Thus, the need to preserve and promote this valued item is of paramount important in the construction industry for essential, qualitative, viable and functional products are delivered to the end users.

Various factors that cause delay in construction projects and their effects were identified. However very limited studies (Ali et al., 2013 and Moore, 2012) pointed out that delay affects contractor reputation. Therefore, this research work is to focus on the effect of delay on contractor reputation and to what extent of damage it caused. The literature review highlighted many common delays factors but little was done on the effect of delay on contractor reputation. This motivates the researcher to investigate this phenomenon.

1.4 Research Questions

This research work is proposed to answer two questions, which invariably would assist in achieving its objectives. The questions are:

i. What are the effects of construction delays on contractor reputation?

ii. What solution could be recommended to promote contractor reputation in the Nigerian construction industry?

1.5 Aim and Objectives of the Research

The aim of this research is to study the impact of common delay factors on the contractor reputation. This can be achieved through the following objectives:

i. To identify the effects of construction delays on contractor reputation in the Nigerian construction industry.
ii. To propose possible solutions that can promote contractor reputation in the Nigerian construction industry.

1.6 Significance of Research

The expected findings of this work will assist the contractors to identify the common factors, what effect they have on reputation and to be active in their activities. These can give confidence and reliability to the clients and other key participants in the construction industry. Contractor is an intermediary between owners of projects and the labor work force in the project. Therefore, findings will provide to the contractors much regards from subcontractors and labor workers if uses the recommendations of the research. Furthermore, the expected outcome will open a window, thereby contributing to the academic environment additional knowledge on the common factors of construction delays and what effects they have on contractor reputation.

1.7 Scope of Research

The research work focuses on the common factors of construction's delay. It also focuses on the effect of these factors on the key players in the construction industry more especially the contractors. The work will be centered on the contractor's reputation towards future success in procuring subsequent projects. The work is to create way that can promote the performance of contractors in executing their task within time, budget and also quality consideration, thereby resulting to reliability, integrity and marketability in the Nigerian construction industry.

The work is to consider clients, consultants and contractors as respondent. It is justified by (Olado, 2007) that the main project participants in a typical construction project in Nigeria are the client and his/her team of professional advisers (consultants) on one hand and the main contractor, subcontractors and suppliers on the other hand. However, the potential respondent of this research is the contractor. This is because, contractor undertake the direct physical production of the facility, understands the direct physical construction process in detail and consistently works with specialist supply chains (Radosvljevic and Bennett, 2012).
1.8 Organizational Chapters of the Research

This research work structured into five (5) chapters. Details and specific explanation to every section will be discussed below:

Chapter 1: This is the Introduction of the subject matter. It consists of background of research, the research problem, research questions, research objectives, scope, and significance of research. The last part is the organization of the chapters and summary.

**CHAPTER 1: INTRODUCTION**
In this chapter, background, aim, significant and the scope of the study will be discussed.

**CHAPTER 2: LITERATURE REVIEW**
Literature review is on the common causes of delay and their effect on the contractor’s reputation.

**CHAPTER 3: RESEARCH METHODOLOGY**
The chapter discusses the research process, design and approach. Also it includes the targeted respondent considered in the research.

**CHAPTER 4: DATA ANALYSIS AND DISCUSSION**
The data presentation and Analysis of the result will form the main body of this chapter. The discussion and summary will be the conclusion of this chapter.

**CHAPTER 5: CONCLUSION**
Summary of the findings of this research will be highlighted. Conclusion and General Recommendations relevant to the findings are to be drawn.

Figure 1.1: Organization of Chapters

Chapter 2: Literature review looks at the previous writing researches within the scope. It looks at factors contributing to delays and the effects of delay in the construction industry. The chapter focuses on identification of the research gaps that
have not been discussed by previous researchers or need to be discussed more. The chapter focuses on the different perceptions of reputation, critical components of reputation and summary.

Chapter 3: Chapter three discusses the method that has been adopted in conducting the research. The research process and design, population and sampling techniques used were discussed. The instrument used in data collection and the technique applied in analysis of data were explained vividly.

Chapter 4: This chapter presents the data and analyses it. It also discusses the result from the survey and findings of the survey. The chapter discusses the main results of the analysis. The discussion in this chapter answers the research questions and formed the basis of recommendations and future research.

Chapter 5: The last chapter in the research summaries the entire research work conducted and the conclusion. The recommendations were given for possible actions to be taken. The chapter ended with highlighting the limitations in the research, and conclusion.

1.9 Summary

Introduction of the research subject matter was explained in this chapter. The explanation comprises the problem statement, which establishes the gap of the research. Research aim and objectives, the questions to be answered in the research, the significant and also the scope of the research were fully explained. This paves a way for subsequent chapters to follow. The chapter serves as bedrock that could accommodate the literature review which follows in the next chapter.
CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses previous researches on the causes and effects of construction’s delay in the construction industry. The overview of the previous researches on the subject matter justifies the way research questions are to be answered. This research reviews its literature relevant to the subject matter from journal articles, books and also available reports from bodies pertinent to this work.

The success of this research can be achieved by having a befitting and concrete literature review, which will be collected from scholars’ write up on the particular subject matter. According to Creswell (2012), written summary of journal articles, books and other documents that defines the previous and present state of data on the subject matter of research is referred to as literature review. Literature review is an important part of the whole research method, which help to acquire the broad and exceedingly valuable input in making the research measures (Chua, 2006).

2.2 Construction Industry

Construction encompasses all civil engineering works and all types of new building projects as well as the maintenance and repairs of existing facilities (Salleh, 2009). More so, Radosavljevic and Bennett (2012) defined construction as a series of activities undertaken by construction companies that produce or alter buildings an
infrastructure. Therefore, construction simply means an act of building or erecting structured products to a prepared shape using appropriate resources and machineries.

Zakaria, Ismail and Yusof (2012) identified construction industry as a sector consists of housing, commercial and infrastructure development. Harrison (2007) defines construction industry as the subdivision of manufacture and trade based on the building, maintaining, and repairing structures. Building and construction industry is the industry of erecting, analyzing, restructuring, renovating, changing, demolishing, relocating, maintaining or repairing any form of building constructed weather on or off site (CSQ, 2012). The functions that construction has make it to be big, lively and difficult industry division that plays a vital role in the Nation’s economy. Building houses, places of works, markets, and places of worships; roads, and repairing and maintaining nation’s physical infrastructure are part of the functions of construction industry (Behm, 2008).

Therefore, construction industry is one of the biggest industries that contributed to the economic growth of nations. This statement was justified by Mahamid et al. (2012) stated that construction industry is one of the industry that provides important ingredients for the development of an economy. Salleh (2009) defines construction industry as a subdivision of the economy that is responsible for the planning, design, construction, maintenance and sometimes demolition of buildings. The definition further states that it is basically service industry, which obtains its inputs and outputs from the subdivisions of economy that they are interrelated and inter-linked. Therefore, looking at the importance of construction industry in the economic development of nations, it becomes necessary to study the activities of the industry and also to be very much vigilant upon all the impediments that will affect the output and quality of the product facilities.

2.3 Delays in Construction

Delay is a term that being referred to as time and cost overrun in construction projects (Memon et al., 2011). This definition is similar to Hamzah et al. (2012) as delay is time and cost in construction projects. They stated that delay is time overrun or extension of time for accomplishment of a project. Construction delay is the action or situation that fallouts in finishing the project later than agreed in the contract. A
delay can also affect to starting or finishing a specific activity later than planned (Mubarak, 2010). However, the definitions above captured time and cost but has to be related to the one agreed in the contract or in the inception stage.

Menesi (2007) defines project delay as the accumulated effect of the delays in the individual activities. Definition of project delay given here lacks some terms. Budgeted cost and contract initial period are the most important terms that supposed to be mentioned, because the factors of delay affect cost and time first before anything else in the construction industry. Amongst the key players of the industry, contractor normally became the prime victim of delay factors for the fact that contractor is responsible for all the acts and omissions of the contractor’s employees, subcontractors, their agents and employees, and any other person performing work under a contract with the contractor (Frank, 2012). Upon all the research conducted, different perceptions on definitions were given to delay. Table 2.1 consists of some of the definitions by various scholars:

Table 2.1: Definitions of delay

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<th>Author</th>
<th>Year</th>
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<tr>
<td>1.</td>
<td>Al-Kharashi and Skitmore</td>
<td>2008</td>
<td>Loss of output and revenues in construction projects.</td>
</tr>
<tr>
<td>2.</td>
<td>Howick et al.</td>
<td>2009</td>
<td>Events that will have an impact on the final date for completion of the project.</td>
</tr>
<tr>
<td>3.</td>
<td>Motaleb and Kishk</td>
<td>2010</td>
<td>The time overrun either beyond the contract date or outside the date that the parties agreed upon for delivery.</td>
</tr>
<tr>
<td>4.</td>
<td>Ali, Smith and Pitt</td>
<td>2010</td>
<td>Situation where the project cannot be completed under the planned time.</td>
</tr>
<tr>
<td>5.</td>
<td>Abedi, Fathi, and Mohammad</td>
<td>2011</td>
<td>Late completion of works as compared to the planned scheduled on the contract.</td>
</tr>
<tr>
<td>6.</td>
<td>Chidambaram, et al.</td>
<td>2012</td>
<td>Situation when the contractor and project owner jointly or severally contribute to the non-completion of the project within the original or the stipulated or agreed contract period.</td>
</tr>
<tr>
<td>7.</td>
<td>Afshari et al.</td>
<td>2011</td>
<td>Situation in which a project due to some causes related to the contractor, client, client’s consultants or other causes has not been finished in contractual or agreed period.</td>
</tr>
<tr>
<td>8.</td>
<td>Marzouk and El-Rasas</td>
<td>2012</td>
<td>Time overrun either beyond the contract date or beyond the date that the parties have agreed upon for the delivery of the project.</td>
</tr>
<tr>
<td>9.</td>
<td>Hamzah et al.</td>
<td>2012</td>
<td>Time overrun or extension of time for completion of a project.</td>
</tr>
<tr>
<td>10.</td>
<td>Mehdiz Riazi and Lamari</td>
<td>2013</td>
<td>Deviation from the originally planned period.</td>
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<td>11.</td>
<td>Gonzalez et al.</td>
<td>2013</td>
<td>The actual time of project completion frequently exceeds the planned time is known as delay or overrun.</td>
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Table 2.1 above indicates the definitions of delay from different researchers. The definitions given mostly consider the inability of the contractor to finished project as planned. Al-Kharashi and Skitmore (2008) gave the definition as loss of output and revenue in construction projects. This clearly include cost overrun as the way Memon et al. (2011) and Hamzah, et al. (2012) defined delay. According to the gathered definitions, delay in construction project is any situation that can lead to extension of scheduled project period or increase on initially budgeted cost of the project due to human or natural causes during design and construction processes.

2.4 Types of Delays

There are several types of constructions delay due to their causes. They may be caused by the contractor, client, and client’s representative and from natural source. Abinu and Jagboro, (2002) discussed that delays are classified into excusable and non-excusable delays. Excusable delays are sub divided into excusable with compensation and excusable without compensation based on their happenings.

But according to Yates and Epstein (2006), delays can be categorized into four (4) main groups as non-compensable excusable, compensable excusable, non-excusable and concurrent delays. However, since three decades back, delay was categorized into three (3) groups according to liability; compensable, excusable and non-excusable delays (Kraiem and Diekmann, 1987). These three (3) groups of delay were confirmed by Dayi, (2010). Therefore, this research focuses on the four (4) categorization of delay namely; excusable compensable, excusable non-compensable, non-excusable and concurrent delays (Yates and Epstein 2006).

2.4.1 Excusable Delays

Excusable delays are delays that the contractor will not be penalized due to their occurrences. It can be divided into compensable and non-compensable (Tawil et al., 2012). Therefore, excusable delays simply mean that they are the type of delays which are beyond the control of the contractor or subcontractors. If it happens, the damages it caused should be on the owner or none of them responsible for the cause,
and in this situation a considerable time be given to the contractor to complete the project. This situation is known as “time at large” (Hackett et al., 2007).

2.4.1.1 Excusable Delays with Compensation

Compensable excusable delays are those delays that caused by client (Yates and Epstein, 2006). It results in time extension and compensation to the contractor. These delays result from various circumstances as stated by Yates and Epstein (2006). The first is the inability of the owner to provide work site in time, which causes project delay. Changes which were initiated by the owner and owner’s delay in delivering order to continue work also subject the project to run in to delay.

Defective designs, poor coordination of other contractor’s work by the owner and owner’s inability to supply equipment in time were also types of circumstances that cause excusable delay with compensation. Misleading of contractor due to the information of the owner, interference of owner with the performance of the contractor, delay in the approval of shop drawings are among the situations that lead to excusable delays with compensation. Others are changes in the contract requirements and the encountering of different site condition by the contractor (Yates and Epstein, 2006).

Excusable delays with compensation at times lead to schedule extension and results to the owner financial damages to the contractor (Aibinu and Jagboro, 2002). Therefore, this type of delay will affect the client funding budget because the contractor can claim for damages for all the causes emerged from the side of the client or his representatives.

2.4.1.2 Excusable Delays without Compensation

Excusable delays without compensation are delays that are not the caused by the owner or the contractor. They are “Acts of God” or other unforeseeable causes beyond the control of both parties (Hackett, et al. 2007; Yates and Epstein, 2006). Contracts usually contain a clause called the force majeure clause, which enumerates the various causes of delays for which neither party is legitimately responsible.
2.4.2 Non-excusable Delays

Non-excusable delays can be attributed to the actions, or inactions, of the contractor. When a contractor causes delays to the completion of a project, such delays preclude the contractor from obtaining a time extension and may also trigger delay damages against the contractor. Some of more common contractor caused delays as mentioned by Muhamad, (2010) include failure of contractor to mobilize the site and start the work in a timely manner. It includes also delay in the submission of shop drawings to the owner for approval, inadequate construction equipment and defective works.

Others examples include deviating from the contract specification, labor, material, and other resources management deficiencies during construction, deficiency of coordination of tradesmen and subcontractors and failure to execute various portions of the work in a timely manner. More so, client can claim damages if it had been captured in the contract agreement (Muhamad, 2010).

Therefore, contractor is liable to pay damages to the client in this type of delays. It is important to note here that contractor is to look at all the possibilities of avoiding the delays for him to attain a meaningful margin at the end of the project execution.

2.4.3 Concurrent Delays

On a typical construction project, delays do not constantly fall into one of the three previous categories discussed but quite often there are multiple factors that cause or contribute to delays (Yates and Epstein, 2006). Therefore, Ibbs, Nguyen and Simonian (2011) defined concurrent delays as ordinarily labeled as two or more delays that happen at the same time, either of which would cause a project delay.
Furthermore, Masrom Md (2007) describes concurrent delay as the occurrence of non-excusable and excusable compensable types of delay. From the above definitions given by the scholars, it is conformed to the statement of Dayi (2011) which says, it is the type of delays which seems like a simple issue and still there is no clear definition of concurrent delays.

2.5 Delay factors in Construction Projects

Delay in construction is associated with three main causes (Hackett et al., 2007). Ren, Atout and Jones (2008) classified delay into three (3), namely delay caused by contractor, employer or his representatives and those by events that are out of both the contractor and employers and it is termed as ‘act of God’.

Financing by contractor during construction, delays in contractor’s payment by owner, design changes by owner or his agent during construction, partial
payments during construction, and non-utilization of professional construction/contractual management act as the most common causes of delay in construction projects (Abd El-Razek, Bassioni and Mobarak, 2008).

Ali, et al. (2010) concluded in their research that labor shortage, contractors’ financial difficulties, construction mistakes and defective works were the most common causes of delay. Furthermore, the research mentioned the effects of delays on construction industry as cost overrun, extension of time, late payment, rescheduling, affect company reputation and loss of productivity and efficiency. The result shows that cost overrun and extension of time have significant effects on contractor. However, the contractor reputation did not fall in to one of the common effects on contractor in the research, despite its advantage. Therefore, looking further to investigate and substantially justify the effects of constructions delays on contractor’s reputation become very much important.

2.6 Contractor-related Delay Factors in Construction Projects

Saleh (2009) define contractor as the person or organization that is responsible for planning and execution of construction project. Therefore, contractor related delays are the most important delays in the construction industry. This statement was justified by Gündüz et al. (2013). They said that contractor-related group of delay factors was the most significant group to cause delays. Table 2.2 below indicates the contractor related causes of delays.

Table 2.2: Contractor-related Delay factors

<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
</table>
| 1  | Alwi and Hampson (2003) | Indonesia | • Too much overtime for labour.  
• Inappropriate construction methods.  
• Equipment shortage.  
• Poor equipment choice.  
• Ineffective equipment.  
• Outdated equipment.  
• Poor site layout.  
• Poor storage of material.  
• Misuse of material.  
• Lack of contractor’s skill.  
• Lack of trades’ skill.  
• Poor scheduled delivery. | • Lack of trades’ skill.  
• Sloveness in making decisions.  
• Design changes.  
• Delay of material delivery to site.  
• Inappropriate construction methods. |
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Lack of technical professional in the organization.</td>
<td>- Financing project by the contractor.</td>
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<td></td>
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<td></td>
<td>- Unsmooth external and internal communications.</td>
<td>- Organizational chart.</td>
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<td></td>
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<td></td>
<td>- Lack coordination with subcontractors.</td>
<td>- Communication externally and internally.</td>
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<td>- Centralization with top Management.</td>
<td>- Mistake during construction.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Delayed mobilization.</td>
<td>- Unrealistic control duration.</td>
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<td></td>
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<td></td>
<td>- Incompetent contractor staff.</td>
<td>- Many provisional sum and prime cost.</td>
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<td></td>
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<td></td>
<td>- Poor planning, scheduling or resource management.</td>
<td>- Nomination of subcontractors and suppliers.</td>
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<td></td>
<td>- Poor quality control.</td>
<td>- Client’s irregular payment to the main contractor.</td>
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<td></td>
<td>- Congested construction site.</td>
<td>- Incomplete drawings.</td>
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<td>- Delay in approval of document.</td>
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<tr>
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<td>- Incomplete contract document.</td>
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<td>- Changes in drawings and specifications.</td>
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<tr>
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<td></td>
<td></td>
<td>- And duration of inspection procedure.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>- Slow delivery of materials.</td>
<td>- Delay in contractor’s payment by owner.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Preparation of drgs and sample.</td>
<td>- Design changes by owner or his agent during construction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Lack of data base in estimating activity duration and resources.</td>
<td>- Partial payment.</td>
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<td></td>
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<td></td>
<td>- Shortage of materials.</td>
<td>- Non-utilization of professional construction/contractual management.</td>
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<td>- Controlling SC by MC.</td>
<td>- Slow delivery of materials.</td>
</tr>
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<td></td>
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<td></td>
<td>- Poor labor productivity.</td>
<td>- Difficulty of coordination between various parties (contractor, SC, owner, consultant) working on the project.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Errors due to inexperience.</td>
<td>- Slowness of the owner decision making process.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Shortage in equipment.</td>
<td>- The relationship between different SC schedules.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Shortage in labor.</td>
<td>- Preparation of shop drawings and material samples.</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Unskilled operators.</td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>- Poor equipment productivity.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- And accident during construction.</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Author</td>
<td>Location</td>
<td>Contractor-related Factor</td>
<td>Findings</td>
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<td>------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
• Lack of necessary machinery.  
• Tools and automation available for project.  
• Lack of contractor's experience and control over project.  
• Poor efficiency of supervisor or foreman.  
• Using obsolete technology.  
• Contractor's financial difficulties.  
• Inappropriate construction methods.  
• Lack good relationship with client/consultant. | • Lack of standardization of design.  
• Lack of contractor's experience.  
• Inadequate experience.  
• Lack of competent subcontractor /suppliers.  
• Unrealistic project schedule.  
• Lack of responsibility.  
• Contractor's financial difficulties.  
• Poor management.  
• Poor site access.  
• Poor efficiency of supervisor or foreman.  
• Delay of client payment  
• Shortage of funding.  
• Errors and omissions in design documents.  
• Confusing and ambiguous requirements.  
• Low constructability of design.  
• Lack of timely decision.  
• Slow responses from the client organization.  
• Impractical design.  
• Unclear lines of responsibility.  
• Lack of machinery.  
• Tools and automation available for project. |
• Shortage of professionals.  
• Insufficient coordination among parties by contractor.  
• Delay in mobilization.  
• Safety rules and regulations practices in the organization.  
• Incompetent technical staff.  
• Improper technical study by the contractor during the bidding stage.  
• Poor planning and scheduling.  
• Ineffective quality control.  
• Use of unacceptable construction techniques.  
• Financial difficulties.  
• Delays payments to subcontractors. | • Poor planning and scheduling of the project by the contractor.  
• Financial difficulties faced by the contractor.  
• Too many change orders from owner.  
• Shortage of man power.  
• Incompetent technical staff assigned to the project. |
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
</table>
| 6  | Tumi, Omran, and Pakir (2009) | Libya    | • Improper planning, shortage of supply.  
• Cash-flow problems during construction.  
• Inadequate of experiences,  
• Site accidents.  
• Negligence.  
• Late deliveries of materials and equipment.  
• Mismanagement by the contractor.  
• Negotiation during construction.  
• Mistakes during construction.  
• Conflicts in work schedules of subcontractors.  
• Dispute and shortage of materials. | • Improper planning.  
• Lack of effective communication.  
• Design errors.  
• Shortage of supply.  
• Slow decision making.  
• Financial issues.  
• Shortage of materials.  
• Cash-flow problems.  
• Increase in quantities.  
• Contractor mismanagement.  
• Executive bureaucracy in the owners' organization.  
• Notification of extra works.  
• Changes in site condition.  
• Date of notice to proceed and financing matters.  
**Effects**  
• Loss of interest by the stakeholder.  
• Blacklist by authorities.  
• Waste of money and time.  
• Declination of reputation. |
| 7  | Motaleb and Kishk. (2010) | UAE      | • Late delivery of materials.  
• Slow mobilization of labor.  
• Shortage of skilled labor.  
• Labor productivity.  
• Labor supply.  
• Absenteeism and strike.  
• Low motivation.  
• Insufficient numbers of equipment.  
• Equipment allocation problems.  
• Inadequate modern equipment.  
• Unreliable sub-contractor.  
• Inappropriate construction methods.  
• Inadequate contractor experience.  
• Contractor's financial difficulties.  
• Inaccurate site investigation. | **Causes**  
• Change orders.  
• Lack of capability of client representative.  
• Slow decision making by client.  
• Lack of experience of client in construction.  
• Poor site management and supervision.  
• Incompetent project team.  
• Inflation/price fluctuation.  
• Inaccurate time estimating.  
• Late delivery of materials.  
• Improper project planning/scheduling.  
• Inaccurate cost estimating.  
• High interest rate.  
• Client's financial difficulties.  
• Unreasonable constraint to client.  
• Inappropriate construction methods.  
**Effects**  
• Cost and time overrun. |
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
</table>
| 8  | Ayudhya (2011) | Singapore | • Inaccurate bill of quantities.  
• Inability of contractor to sublet the contract during bidding.  
• Violating conditions of the contract.  
• Poorly written contract.  
• Contractor financial problem.  
• Inflation and exchange rate.  
• Accuracy of project cost estimate.  
• Fluctuation in materials cost and labor during construction.  
• Lack of skill labor and engineers.  
• Deficiencies of organization.  
• Third party delays and accidents.  
• Poor quality of completed works. | • Delay in progress payment by owner.  
• Main contractor financial problems.  
• Adverse weather conditions.  
• Evaluation of completed works and insufficient working drawing details.  
• Fluctuation in materials cost and labor during construction. |
| 9  | Mehdi Riazi, Skitmore and Cheung (2011) | Malaysia | • The Use of Supply Chain Management to Reduce Delays:  
• Malaysian Public Sector  
• Construction Projects | Yet to finished the research |
• Late delivery of materials.  
• R/ship between management and labor.  
• Poor site management.  
• Mistakes during construction.  
• Cash and financial difficulties.  
• Poor financial control on site.  
• Delay in material procurement.  
• Rework.  
• Shortage of site workers.  
• Incompetent sub-contractor.  
• Labor productivity.  
• Equipment availability and failure.  
• Shortage of skilled labor.  
• Waste on site.  
• No. of construction going on at the same time.  
• Lack of constructability.  
• Contractual claims.  
• Unsuitable construction methods.  
• Insufficient no. of equipment.  
• High cost of machinery and maintenance.  
• Labor absenteeism.  
• Severe overtime and delay payment to supplier and subcontractor. | • Poor design and delays in design.  
• Unrealistic contract duration and requirements imposed.  
• Lack of experience.  
• Late delivery of materials and equipment.  
• Relationship between management and labor.  
• Delay preparation and approval of drawings.  
• Inadequate planning and scheduling.  
• Poor site management and supervision.  
• Mistakes during construction.  
• Changes in material specification and type. |
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
</table>
- Material shortage.  
- Labor shortage.  
- Poor site management.  
- Equipment and tool shortage.  
- Construction mistakes and defective works.  
- Coordination problems. | CAUSES  
- Labor shortage.  
- Contractor’s financial difficulties.  
- Construction mistakes and defective works.  
- Coordination problems.  
- Material shortage.  
- Poor site management.  
- Equipment and tool shortage.  
EFFECTS  
- Cost and time overruns.  
- Late payment.  
- Rescheduling.  
- Affect company reputation.  
- Lost productivity and efficiency. |
- Delivery of materials on site.  
- Increased material price.  
- Insufficient equipment.  
- Financial difficulties faced by contractor.  
- Insufficient contractor experience.  
- Poor site management.  
- Construction mistakes and defective work. | CAUSES  
- Labor productivity.  
- Delivery of materials on site.  
- Increased material price.  
- Insufficient equipment.  
- Financial difficulties faced by contractor.  
- Insufficient contractor experience.  
- Poor site management.  
- Construction mistakes and defective work.  
EFFECTS  
- Cost and time overruns.  
- Late payment.  
- Rescheduling.  
- Affect company reputation.  
- Lost productivity and efficiency. |
- Poor communication by contractor with other construction parties.  
- Financial difficulties.  
- Ineffective scheduling of project by contractor.  
- Rework because of errors during construction.  
- Delay in commencement.  
- Poor qualification of the contractor’s technical staff.  
- Poor resource management.  
- Poor site supervision by contractor.  
- Improper construction method. | CAUSES  
- Political situation.  
- Segmentation of the west bank.  
- Award project to lowest bid price.  
- Progress payment delay by owner.  
- Shortage of equipment. |
<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Location</th>
<th>Contractor-related Factor</th>
<th>Findings</th>
</tr>
</thead>
</table>
| 14 | Akogbe, Feng, and Zhou (2013)  | Benin    |  • Poor site management and supervision.  
  • Financial capability.  
  • Poor subcontractor performance.  
  • Materials procurement.  
  • Lack of skilled workers.  
  • Defective work.  
  • Labour injuries.  
  • Construction mistakes.  
  • Inadequate planning.  
  • Scheduling, and equipment availability. |  • Financial incapability.  
  • Financial difficulties of owner.  
  • Poor performance by SC.  
  • Materials procurement.  
  • Changes in drawings.  
  • Inadequate planning and scheduling.  
  • Slow inspection of completed works.  
  • Equipment availability.  
  • Preparation and approval of drawing.  
  • Accepting inadequate design. |
| 15 | Mahamid (2013)                  | Palestine|  • Difficulties in financing project by contractor.  
  • Poor communication by contractor.  
  • Conflict between contractor and other parties.  
  • Poor resource management.  
  • Rework due to errors during construction.  
  • Ineffective scheduling of project by contractor.  
  • Poor qualification of contractors' technical staff.  
  • Delay in commencement.  
  • Poor site supervision by contractor.  
  • Improper construction method. |  • Segmentation of west bank and limited movement between areas.  
  • Political situation.  
  • Progress payments delay by owner.  
  • Lack of equipment efficiency.  
  • Difficulties in financing project by contractor.  
  • Personal conflicts among labors.  
  • Poor communication by consultant.  
  • Conflict between contractor and other parties.  
  • Award project to lowest bid price.  
  • Unreasonable project time frame by the owner. |

The contractor related causes of delay in the construction industry was compiled as in Table 2.2. The literature available covers one decades of period, ranging from 2003 – 2013. Alwi and Hampson, (2003) identified twelve (12) contractor related causes of delay in their literature. The result of their research indicates that lack of trade skills slowness in making decisions, design changes, and delay in the delivery of materials to site were significantly causes delay in construction due to contractor lapse. However, the research did not touch the effects of the delay on the key players in the construction industry, which contractor is one of them.

Another research conducting by Ren, et al. (2008) stated various factors of delay caused by the contractor. The findings of the research revealed that preparing method statement, financing project by contractor, organizational chart, and communications (both internally and externally) and mistakes during construction
caused delay from the contractor side. These most significant factors in the research most have effects on the contractor. Because the delay that emerges from the contractor site is among the non-excusable delays.

In addition, Abd El-Razek, et al. (2008) conducted a research in Egypt. The research identified financing by the contractor, owners delay in payment; changes during construction by the owner, partial payment and non-utilization of professional contractual management were the most significant factors that caused delay. Out of these factors, financing by the contractor and non-utilization of professional construction management were related to contractor. The result resembles Ren, et al. (2008), where it indicates that financing project by the contractor is among the significant factor that causes delay. In contrast, Toor and Ogunlana (2008) identified lack of standardization of design, lack of contractor experience, lack of competent subcontractors and unrealistic project schedule were the most significant factors. The research identified contractor financial difficulties as less significant. This may be due to geographical locations where the researches were conducted. However, Sweis, et al. (2008) confirmed that poor planning and scheduling, financial difficulties by the contractor were the most significant causes of delay that are related to contractor.

Improper planning and lack of effective communication were the most significant factors that caused delay in construction project related to contractor as stated by (Tumi et al., 2009). But in the case of Motaleb and Kishk (2010), it was stated that late delivery of materials, slow mobilization of labor, shortage of skilled labor, labor productivity and labor supply were causes of delay that related to contractor. Others are absenteeism, low motivation, insufficient equipment and their proper allocation, inadequate standard equipment, unreliable sub-contractors and inappropriate construction methods. Inadequate contractor, contractor financial difficulties and inaccurate site investigation were also contractor related causes of delay. However, the findings of the research revealed that change orders and incapable client’s representative were the most significant factors that cause delay. These are client and the representative related causes of delay.

The research conducted by Ayudhya (2011), stated that main contractor financial problems is one of the significant causes of delay in Singapore. Though, in Malaysian construction industry, it was stated that lack contractor experience, late delivery of materials and relationship between labor and management were the
significant factors (Memon, et al., 2011). Ali, et al. (2012), outlined seven contractor related causes of delay in Malaysia as labor shortage, financial difficulties, mistakes, coordination problem, materials shortage, poor site management and shortage of equipment. They also outline effects of delay as cost and time overrun, late payment, rescheduling, affects company reputation, and low productivity and efficiency. Therefore, looking at all the delay factors and their causes, discussion on the effects of delay is not adequate. More so, the research conducted, which investigates the effects of delay on contractor in the construction industry is limited.

2.7 Effects of Delay Factors

Based on the research conducted by Mehdi Riazi and Lamari (2013), it identifies time frame extension, increase in cost due the extension of time, government periodic budget and plan execution, and cost overrun as effects of delays in construction projects. Furthermore, they said the reputation is always at stake in delay cases and the government risks losing public confidence, also the depressing condition is subject to litigation and arbitration. Mehdi Riazi et al. (2011) stated in their research that delays have serious effect on construction organizations, which results to increase in cost of the project, loss of opportunity cost, damage in reputation, arbitration, litigation and even to the worse situation of abandonment of the project. However, scholars concerned on the effects of delays on construction organization in general, but there is need to look at the effects on the reputation of the organizations since reputation is an intangible asset and it affects future business.

Delay in completion of projects includes an increased overheads and loss of opportunity of taking on other profit-earning projects with the resources tied down on the delayed project (Ndekugri, Braimah and Gameson, 2008). Table 2.3 summarizes the effects of delay in the construction industry from various studies. Table 2.3, summaries the effects of construction delay in construction industry from various researches around the world. This is indicating that delay has effect on the construction projects. The effects of this delay affect the contractors, clients and consultants in the projects. This research focuses the contractor and the effects of this delay on their reputation.
Researchers confirmed various effects of delay in construction industry. Cost overrun, time overrun, disputes, arbitration, litigation and total abandonment were the effects of delay in construction industry (Motaleb and Kishk, 2010; Abedi, et al. 2011 and Mehdi Riazi, et al. 2011). In addition, Mehdi Riazi, et al., (2011) mentioned that, loss of opportunity cost and reputation damage was the effects of delay in construction industry.

Ashnaari et al. (2010) conducted a research and confirmed that increased disputes and costs, loss of outputs, create social problems, affects social and economic conditions in the project is being built were effects of delay. Although Alnuaimi, et al. (2010) stated mentioned effects of delay as time overrun, claims and disputes, cost overruns, affect the performance and moral of labor and additional costs due to variations.

Table 2.3: Effects of Delay

<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Year</th>
<th>Location</th>
<th>Effects of Delays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tumi, Omran and Pakir</td>
<td>2009</td>
<td>Libya</td>
<td>▪ Lost of Interest by the Stakeholder &lt;br&gt;▪ Blacklist by Authorities &lt;br&gt;▪ Waste of Money and Time &lt;br&gt;▪ Declination of Reputation</td>
</tr>
<tr>
<td>2.</td>
<td>Motaleb and Kishk</td>
<td>2010</td>
<td>U. A. E</td>
<td>▪ Time overrun. &lt;br&gt;▪ Cost overrun. &lt;br&gt;▪ Dispute. &lt;br&gt;▪ Arbitration. &lt;br&gt;▪ Litigation. &lt;br&gt;▪ Total abandonment.</td>
</tr>
<tr>
<td>3.</td>
<td>Asnaashari, Knight and Hurst</td>
<td>2010</td>
<td>Iran</td>
<td>▪ Increased in the rate of dispute. &lt;br&gt;▪ Increased in cost (labor, material and overhead). &lt;br&gt;▪ Loss of outputs. &lt;br&gt;▪ Create social problems to government. &lt;br&gt;▪ Affect the social and economic conditions in which the project is being built.</td>
</tr>
<tr>
<td>4.</td>
<td>Alnuaimi, et al.</td>
<td>2010</td>
<td>Oman</td>
<td>▪ Delay completion date of projects. &lt;br&gt;▪ Variations would result in claims and disputes. &lt;br&gt;▪ Cost overruns. &lt;br&gt;▪ Adversely affect the performance and moral of labor. &lt;br&gt;▪ Additional costs due to variations.</td>
</tr>
<tr>
<td>5.</td>
<td>Mehdi Riazi, Skitmore and Cheung</td>
<td>2011</td>
<td>Malaysia</td>
<td>▪ Increased costs. &lt;br&gt;▪ Loss opportunity costs. &lt;br&gt;▪ Reputation damage. &lt;br&gt;▪ Arbitration. &lt;br&gt;▪ Litigation. &lt;br&gt;▪ Total abandonment of projects.</td>
</tr>
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