

MINIMIZING DELAY IN CONSTRUCTION PROJECTS IN
TEHRAN, IRAN

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To my lovely Wife and my beloved Mother and Father
Thank you for all the love and support

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ABSTRACT

Construction industry is one of the most profitable sectors in Iran's economic. Delay is common problem in the construction projects in Iran. This research, by considering the main causes of delay, prepared appropriate suggestions to minimize delay in construction projects in Tehran (Capital of Iran). Literature review provided up to date information with current literature and based on reviewing past publications. The questionnaires were distributed among respondents who are involved in the construction project in Tehran, Iran. The process of data analysis and discussions were conducted based on the questionnaire survey to identify the frequency of occurrence and severity affect of delay as well as findings the most effective methods of minimizing delay in Tehran's construction projects. As a result of this study, respondents believe that 'Delay in payment to contractor' by client, 'Difficulties in financing' by contractor, 'Slowness in decision making' by client and 'Poor site management' by contractor are the most frequent and severe causes of delay in Tehran construction projects. Moreover the negative effects of delay on construction projects are: Cost Overrun, Change in Schedule and Liquidated Damage. Furthermore, the most effectiveness methods of minimizing delay are as follows: Pay progress payment to the contractor on time' by client, 'Accurate initial cost and time estimates' by client and contractor, 'Competent personnel of contractor / sub-contractor' by contractor. Finally and based on the findings of this research, there were some recommendation to minimize the rate of delay in construction project in Tehran.

Keywords: Delay, Construction projects, minimizing delay, causes and effects of delay

ABSTRAK

Industri pembinaan adalah salah satu industri yang paling menguntungkan di Iran. Kelewatan penyediaan projek adalah merupakan masalah lazim di Iran. Tujuan penyelidikan ini ini bertujuan untuk mencari punca kelewatan projek di Iran dan mencadangkan cara mengatasinya. Kajian literatur di buat untuk mencari punca kelewatan dan senarai soalan di edarkan kepada responden yang terlibat langsung dengan projek di Iran. Analisis Indeks Purata di gunakan untuk menganalisa data. Keputusan menunjukkan kelewatan bayaran kepada kontraktor, kesulitan mendapatkan keuangannya, lambat mengambil keputusan oleh klien dan pengurusan tapak yang lemah oleh kontraktor adalah punca utama kelewatan projek di Iran. Dari kajian di dapati cara mengatasi kelewatan projek di Iran adalah bayaran kemajuan kepada kontraktor tepat pada masanya, menentukan kos projek dengan lebih tepat, pengambilan kakitangan tapak yang berkebolehan dan berpengalaman oleh kontraktor mesti di laksanakan.

Kata Kunci : Kelewatan projek, projek pembinaan , sebab kelewatan projek dan kesan kelewatan projek

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LIST OF ABBREVIATIONS

CE	-	Compensable Excusable Delays
EC	-	Excusable Delay
EN	-	Excusable Non-compensable Delay
NE	-	Non-Excusable Delay
i	-	Response category index = 1, 2, 3, 4, 5
RI	-	Relative Importance Index
SPSS	-	Statistical Package for the Social Sciences
Wi	-	Weight assigned to each response
Xi	-	Frequency of the each response given as percentage of the total responses for each factors

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

There are many problems which can be occurred during the implementation of construction projects; one of the most important is delay. It can be defined as a completion of a project in excess of its planned time, cost and schedule and delay should be considered as frequent dilemma in construction projects. According to Bassioni & El-Razek (2008) delay in construction project is considered one of the most common problems causing a multitude negative effect on the project and its participating parties.

Ogunlana (2008), identified that although the fundamental reasons for delays are analogous across developing countries, several factors like local industry, social-economic, cultural issues and project characteristics also contribute to delay. Even though, with the development technology and project management technique, construction delays are a major source of problem in the construction industry. (Aibinu, 2009)

As a matter of fact, delays can be arisen by actions or reactions on the part of each party such as owner, consultant, contractor, subcontractor and the government. Moreover, projects can be more complicated because of the issue of delays and it definitely leads to time and cost overrun.

Hence, delay is common problem in construction industry and identifying the causes of delay should be considered by managers and engineers. There are several factors, which cause delay in construction projects such as environment, management, Act of God, politic, stakeholders, technology, logistics and etc. Extension of time, compensation cost and even abandonment are some effects of occurring delay in construction projects.

Thus, the goal of this study is to identify the best practices that reduce delay in construction industry. The results of this paper would lead to suggestions and recommendations aimed at decreasing the rate of delay which can cause more benefit for all parties.

1.2 Statement of the Problem

Construction industry is one of the most profitable and beneficial sector in the Iranian economy, which has an annual turnover of US \$38.4 billion and it is continuing to increase with an average growth of 4.40% during 2008 to 2012 (Companies and Markets, 2008). The successful implementation of a construction project and completing the project within estimated time and cost depends on several factors, which are related to all parties. Lack of consideration of those factors, can lead to delay, which is the most important and reoccurring problem in the Iranian construction projects. According to the statistics, more than 40% of Iranian construction projects are suffered from delay. (Fars News Agency 2011)

According to the head of Islamic council of Tehran (*capital of Iran*) more than **40%** of construction projects are behind the schedule, **37%** of them are suspended and only **23%** of projects are completed on time. (Fars News Agency 2011)

By considering the negative effects of delay on construction projects such as increased cost, extension of time, dispute between parties and dissatisfaction, focus on delay in Iranian construction industry is vital. Unfortunately, the Iranian construction industry is suffered from some problems and it leads to slow progress in project and also increases the cost and time of a construction.

Moreover, delay is one of the most reoccurring problems in Iran's construction industry. According to the statistics from long time ago (Plan and Budget Organization, 1972), there were some causes for occurring delay in the Iranian construction projects. They are;

- i. Awarding contracts to the lowest bidder
- ii. Change in order
- iii. Lack of using new technology
- iv. Other problems

Nowadays, construction industry in Iran is faced with the same problems mentioned above and some of them are occurring yet. Hence, delay is common problem in the most of construction projects. Furthermore according to Islamic council of Tehran (*capital of Iran*) more than 40% of projects are suffered from delay. (Fars News Agency, March2011). In addition, shortage of liquidity, delay in payment and unskilled manpower are the most frequent causes of delay in recent years (Seyed Hasan Mahfoozi, 2009). For more information, just 7% of Iranian workers are knowledgeable and have enough experience and skill (Tehran Today Newspaper, 2010).

Also another cause of delay in the Iranian construction industry is the enormous difference among demand and supply, especially in the residential sector. This difference is made by some factors such as the immediate grow in the price of land, construction equipment and materials, a need for 750,000 additional units yearly as young couples start their new life. (Aftab News, 2006). Additionally, because of Iran's geographical position which is located on the seismic belt, using of renovation and reinforcement of buildings is vital. (Australlian Government-Austrade, 2007).

Some negative effects of delay in project are as following (Gene Wortham, 2005):

- Increased cost - inefficiency
- Delayed in project completion
- Frustration- Claims
- Changing In schedule – inefficiency
- Liquidated Damages
- Acceleration

In the case of delay's negative effect in the Iranian construction industry, there are some critical dilemmas such as increasing in the rate of disputes, raising the value of construction in the field of a great inflation rate when the contractor should spends more money to purchase construction equipments and materials. Also increase the overhead cost of projects is another instance of negative effect of delay. (Asnaashari and Andrew Knight, 2010)

In addition delay in public projects and infrastructure is more critical. For example, delay in constructing a bridge can lead to financial and even social problems for the Government. Another crucial problem is occurred in the agriculture field. For instance, delay in the building a dam may cause some problems for farmers

such as lack of acceptable irrigation of agricultural lands which can lead to massive loss. (Asnaashari and Andrew Knight, 2010)

Therefore, identifying the causes of delay on the first stage of construction is vital. With considering the main causes of delay, this study will prepare appropriate suggestions to mitigate delays in construction as well as reducing the negative impact of delays in construction industry.

After all, the methods of mitigating construction project delays from the viewpoint of construction industry managers and engineers will be determined. Moreover based on the results, the suitable recommendations will be generated by researcher aimed at decreasing the effect of delays in the Iranian construction projects.

1.3 Aim of the Study

The aim of this study is to propose the best ways and practices to mitigate delay in Iran's construction projects from the viewpoint of managers, engineers and other Iranian practitioners who are engaged in the issue of construction project

1.4 Objectives

- i. To study factors causing delay in Tehran's construction projects
- ii. To identify the effect of construction delay in the construction project in Tehran
- iii. To recommend methods of minimizing delays in construction projects in Tehran

1.5 Scope of the Study

The scopes of this research are as follows:

- i. The research is limited on construction projects in Tehran the capital of the IRAN
- ii. The respondents of the research will be the managers, engineers and companies who work in construction projects in Tehran.

1.6 Research Methodology

The Research Methodology of the study can be divided into three different but dependant phases which are as follows:

- I. Planning and finding Objectives: After initial study and finding title of the research, problems were determined. Then aim and objectives of the research were specified

- II. Collecting data: To achieve the objectives of this research, after gathering information among literature review, Primary Data will be collected from questionnaire. Also secondary data will be gathered among internet and engineer's journals and books

- III. Finding and discussion, Conclusion and Recommendation: Finally after gathering information through questionnaires and interviews, the completion of data analyze will be presented. In addition, discussion of findings, conclusion and recommendation will be conducted.

Figure 1.1 depicts the process of research methodology in different but dependant three stages.

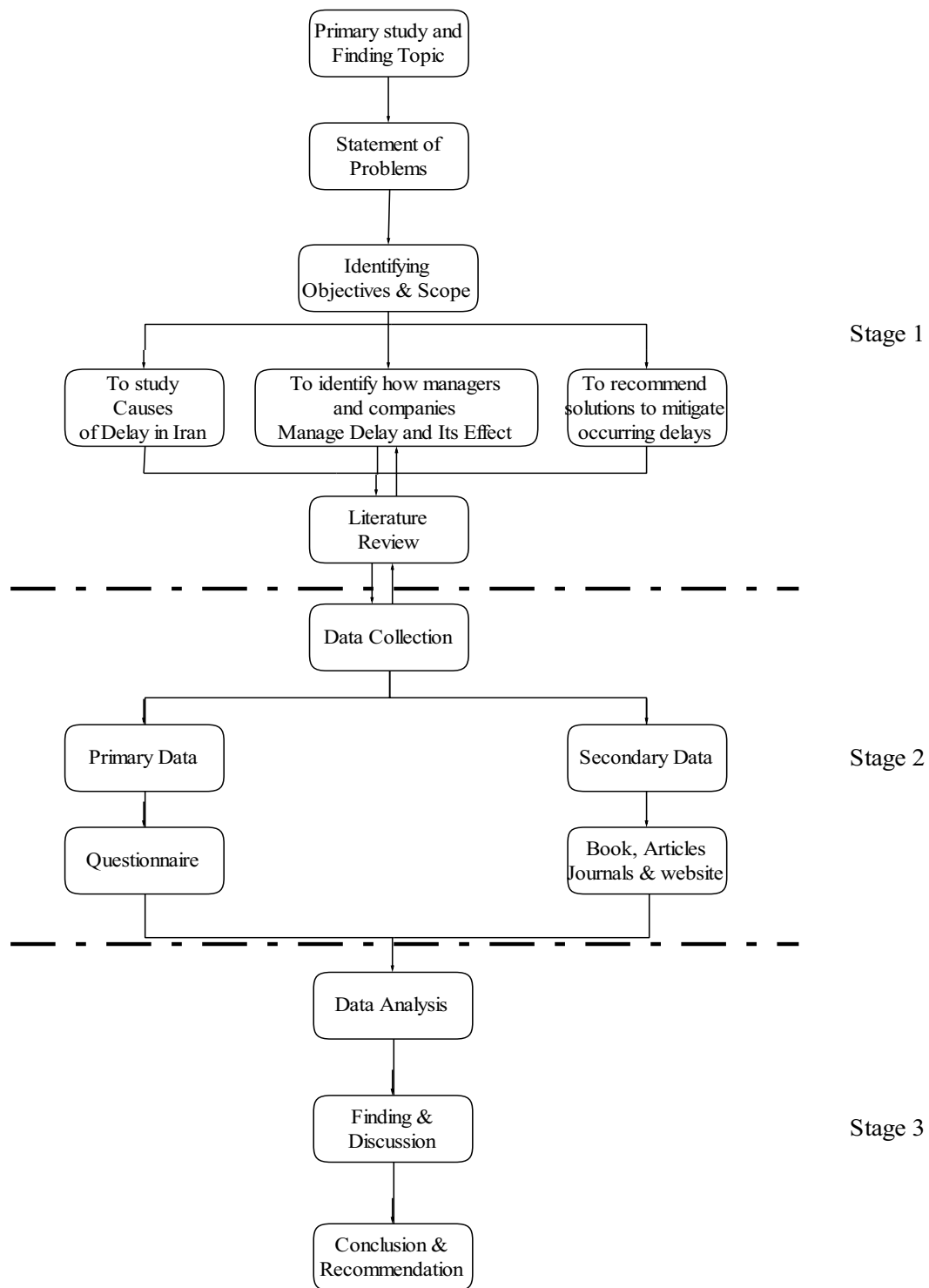


Figure 1.1 Research Methodology

1.7 Expected Findings

The predictions of results will be as follow:

- I. The main causes of delay will be identified and they should be categorized in several groups by ranking based on frequency of occurrence and severity affect.
- II. The effect of delay on construction projects will be identified and ranked based on severity affect.
- III. The best methods of minimizing delay will be recommended according to the ranking of factors which cause delay in construction project in Tehran.

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