Financial and contractual problems of Construction Projects in Iran

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Abstract

The construction industry is vital for the development of any country. The pace of the economic growth of any nation can be measured by the development of physical infrastructures, such as buildings, roads and bridges. Rapid and economy completions of projects depend largely upon the availability of timely funds. Most of the clients hire a general contractor through competitive bidding process to do the entire construction work. The research was done on the industrial projects in Iran. This research conducted by questionnaires survey on those who worked in client consultant and contractor companies. Forty eight sets of questionnaires were posted and emailed to large companies in Esfahan at random. The result indicated that the most important contractual problems were: In the documents of tender, some items of the tasks and works in project are not predicted, In the time of the tender, drawing and plans are not complete, contractors have not enough information about all work items in the project and the details about it, In the process of a project execution more new tasks are ordered, some of them need special plans and equipment that contractors are not ready for them. The most important financial problems were: employer financial problem, contractor financial problem, inflation, low price of contract and lack of financial resources.

Keywords: Finance, Contract, Esfahan, Iran

1. Introduction

The construction industry plays an important role for every national development. Its contribution to the gross domestic product and to the development of a country, particularly for developing countries has always been acknowledged Abu Hassan (2002) according to Kirmani (1998). Many problems remain unresolved in Iran's oil and gas projects. Despite the US sanctions, the Iranian oil industry has made great progress. Indeed, US sanctions have only delayed Iran's plans for one or two years. However, politicians have forced the National Iranian Oil Company (NIOC) to squeeze foreign investors as hard as to make investment in Iran marginal, and the trend points to even lower incentives and tougher conditions. Iran is fully capable of orchestrating a take-off of its oil industry both in upstream and downstream, and in the gas business. But, at this point in time, the political will is not there and things are likely to just muddle along.

2. Previous Study

Researchers indicated causes of delay problems of construction projects; Al-Ghafly, Al-Momani , Baldwin et al. Arditi et al. Assaf and Al-Hejji, Okpala and Aniekwu, Dlakwa and

Culpin, Mansfield NR, Semple et al., Odeh and Battaineh, Lo et .al., Mezher, Aibinu and Murali Sambasivan found that these problems are: inclement weather, shortages of resources, financial difficulties faced by public agencies and contractors, poor contract management, site condition, shortages of materials, changes in the design and scope, delay in making decisions and approvals by owner, difficulties in obtaining work permit and inadequate resources.

Assaf studied the causes of delay in large building construction projects in Saudi Arabia. The most Important causes of delay included approval of shop drawings delays on payments to contractors and resulting cash-flow problems during construct design changes, conflicts in work schedules of subcontractors, slow decision making and executive bureaucracy in the owners organizations, design errors, labor shortage and inadequate labor skills.

Mansfield studied the causes of delay and cost overrun in construction projects in Nigeria. The results showed that the most important factors are financing and payment for completed works, poor contract management, changes in site conditions, shortage of materials, and improper planning.

Al-Moumani (2002) conducted a quantitative analysis of construction delays by examining the records of 130 public building projects constructed in Jordan during the 26 Period of 1996-1997. The researcher presented regression models of the relationship between actual and planned project duration for different types of building facilities. The analysis also included the reported frequencies of time extensions for the different causes of delays. The researcher concluded that the main causes of delay in construction projects relate to designers, user changes, weather, site conditions, late deliveries, economic conditions, and increase in quantities.

Mezher (1998) conducted a survey of the causes of delays in the construction industry in Lebanon from the viewpoint of owners, contractors and architectural/engineering firms. It was found that owners had more concerns with regard to financial issues; contractors regarded contractual relationships the most important, while consultants considered project management issues to be the most important causes of delays.

According to the Sambasivan, Yau (2007) the most important causes of delay in Malaysian construction company were (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labor supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage. They conducted a survey on clients, consultants and contractors to solicit causes and effects of delay. They found that time overrun; cost overrun, disputes, arbitration, litigation, and total abandonment were the main effects of delay.

Aibinu and Jagboro (2002) found the most important effects of construction Delay in Nigeria were: time overrun, cost overrun, dispute, arbitration and litigation and total abandonment. They sent questionnaires three groups of construction practitioners: quantity surveyors, architects and engineers, and contractors.

Odeh and Battaineh (2002) found that owner interference, inadequate contractor experience, financing and payments, labor productivity, slow decision making, improper planning, and subcontractors were among the top ten most important factors in viewpoint of the construction contractor and consultant in traditional type of contract.

Al-Ghafly (1995) concluded that financial problems, changes in the design and scope, delay in making decisions and approvals by owner, difficulties in obtaining work permit, and coordination and communication problems are important causes of delay in public water and sewage projects.

There is some information about situation of Iranian construction projects according to the government reports published by the publication center for the institute of higher education in education and research management. Statistics show delay of construction project in Iran; for examples:

- At the end of 2002 about 68.1% of the project had a delay of about 75.6%;
- The average length of project was 8.1 years;
- The average of 8.5 years has been found out for the 447 projects, which finished in 2002;

- Statistics has showed that delays are depends on financial sources (45.8%), Execution systems (13.8%), contractors (7.6%) and other factors (16.4%); and
- The approved project budget was 70.3%, 60% and 67.6% in 2000, 2001 and 2002, receptively.

Statistics showed that in 2000, 2001 and 2002 the final costs of projects was 70.3%, 60% and 67.6%more than the initial estimations, respectively. This causes delays on projects, which causes over cost, delays in project, which in some case stop the project completely.

Government reported that the 45.8% delays in projects should depend on the budget of the project and could be divided in two different credits. Firstly, internal credits, which normally should be considered in the government, budget for the big projects. However, in most cases these credits have delays which not only cause delay in the whole project but also increase the cost of the project and especially inflation makes it worse in a way which even that initial credit cannot cover the expenses of the project and will lose its economical explanations.

According to this report in 2001, 2002 and 2003, construction projects had a delay of about 30%, 74.5% and 75% respectively. The most important causes of delay were financial problems, inability of employers and inability of contractor.

In Iran, the banking system, which is complex and incompatible with other international banking system as well as not matching, will internal organizations causes delays in approving the projects. In international tenders documents 1.5-3 months has normally considered for opening letter of credit (LC). However, in practice the average of 2 years is now normal in opening the LC for industrial projects in IRAN. It should be mentioned that the total project period is normally considered about 3 years and in fact this procedure will cause a big problem (Abka, 2005).

One of the most important factors is the foreign financers, which plays an essential act in industrial projects. In fact this parameter is depends to the general economical relations of that foreign country with IRAN. Therefore, in fact the project totally depends to the international communications as well as political issues (Abka, 2005)

Meantime, not on time, credits will cause problems for contractors but it causes in-coordination in the whole project. In addition using the bank loans is another request in the projects.

However, banks keep their own system and will not consider the project objections at all (Abka, 2005).

3. Methodology

The research was conducted those who were involved in construction project including: contractors, employer, consultant and supervisor. This research deals with companies submitted in management and planning organization of Esfahan or worked in construction projects in Esfahan.

A sample of 28 directors, project manager and site manager from local companies located in the Esfahan in Iran were chosen for the purpose of this study. This geographical area has been chosen as they represent number of important companies in Iran. The population frame was draw from 28 companies listed in organization of management and planning. Companies were chosen by looking at their nationality, number of employees, location of the organization.

The objective of the study is getting respondent ideas on the problem faced on the construction site. All the data were collected from two resources, primary data and secondary data. The primary data were collected through use of the questionnaire survey and it was analyzed using percentages and frequency, whereas secondary data were obtained from the books, journals, articles, and magazines.

A questionnaire was created for the purpose of data collection. Forty eight of the construction companies which worked in industry projects in Esfahan had been normally selected and the questionnaire emailed for them. Only 28 respondents returned the questionnaires.

This research questionnaire is divided into three (A, B) sections. Each section helps to answer the research questions. Some of the questions require the respondent to choose one or more options. Section A consist of six (6) question about type of organization, Name of firm, Position of respondent, Description of the project, Types of building, Nature of work, kind of company. The purpose was to identify categories of organization, years of involvement in construction industry, kind of construction project and source of work.

A randomly group of targeted respondents of those personnel who have a commanding role in the construction process, management, and extensive site experiences were targeted as respondents for the sample survey. There has been a wide spectrum of

personnel with different position and job title, which had been responded to the survey and for the purpose of analysis and comparison, the whole sample of respondents have been regrouped into three main categories which are director of company (N=12), project management oriented group (N=10), site operative management oriented group (N=6) also the respondent's rates were two (2) from clients group, six (6) from consultant and supervision group, and twenty (20) from contractor group.

Section B consist of twenty one (21) questions about tender price, revised cost, original completion time, revised completion time, contract problems.
The purpose is known whether project completed at the time with tender price. If the project has/had delay what is the reason of delay and who is/ was responsible.

The entire information gathering from the field research done was analyzed in order to get the results or answer the research questions. All data gathered from the field research were analyzed using Statistical Package for Social Science (SPSS), because of its accuracy and effectiveness in quantitative analysis. The methods for analyzing are the statistic descriptive-crosstab and descriptive frequency one-way table. The finding displayed in terms of table, histograms, charts and others. This is to make sure that the finding will reflect the current situations, experienced by chosen respondents in the construction industry and also
Later, an interpretation of these analyses in conjunction with a review of relevant studies and proposals put forward by the various participants constitutes the various suggestions in avoiding the reasons of delays.

4. Analysis and Discussion

Respondents that have been surveyed consisted of three groups, which were employer, consultant and contractor. All respondents hold position in the top management level in their organization namely; director, project manager and site manager. Only 28 respondents returned the questionnaire, there are twelve directors (42.9%), ten project managers (35.7%) and six site managers (21.4%). On the other hand 92.9 percent of projects were industry projects and only 7.1% were residential projects. Also nineteen (67.9%) of the projects were civil and structure works and seven (25%) were mechanical works and only two (7.1%) projects were electrical. Furthermore respondents that have been surveyed consisted of three work groups, which were employer, consultant and

contractor. According to results twenty (71.4%) were working for contractor and six (21.4%) were working for consultant and two (7.1%) were working for employer.

Results of the questionnaire in section B show that the main client in most of the projects (82.1%) is public sector and only 17.9% projects performed under privet sector. Also twenty two (78.6%) types of contract were in terms of cost list booklet (CLB) of organization of management and planning and the rest were fixed price (FP). As well findings reveal that twenty of the respondents (71.4%) said that in terms of contract, contractors provided materials and eight (28.6%) of respondents said that employer was responsible for providing materials also 75% projects had sufficient equipment and machinery and in 25% of the projects equipment and machinery were not sufficient. or about 82.1%) and five of respondents reported their client are from private sector (or about 17.9%).

According to the Table 1 twenty three (82.1%) of the projects had been performed with price more than the contract and only five (17.9%) of project completed within budget of the contract.

		Frequency	Valid Percent	Cumulative Percent
Valid	1	5	17.9	17.9
	2	23	82.1	100.0
	Total	28	100.0	

Yes=1, No=2

Table 1- Project Completed Within the Budget

The results show that financial problems is the most important problem with 4.43 the next is contractor with 4.07 The rest respectively are issue related to contract with 3.86, consultant with 3.36, client with 2.57, labor with 2.5, material with 2.46 And the last one is external factors with 2.07. In other words, financial management, site management and tender management with (4.43, 4.07, and 3.86) are most important reason index in success of project. Table 2 shows these results.

	N	Std. Deviation				
	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Contract 5=excellent, 1=low	28	1	5	108	3.86	.26	1.380
Contractor	28	1	5	114	4.07	.20	1.052
Financial Problems	28	3	5	124	4.43	.13	.690
Consultant	28	1	5	94	3.36	.22	1.162
Labor	28	1	5	70	2.50	.21	1.106
Material	28	1	5	69	2.46	.24	1.290
External factors	28	1	5	58	2.07	.21	1.086
Client	28	1	5	72	2.57	.20	1.034
Valid N (listwise)	28						

Table 2-Delay Causes

4.1- Finance

The aim and objectives of cost management is primarily to ensure that the project is completed within budget. The nomenclature of project cost management entails the whole spectrum of the project right from the inception up to completion stage. According to PMBOK, there are four processes involved in cost management, which comprises of resource planning, cost estimating, cost budgeting and cost control. The processes touch on every aspect of construction process in which each processes provides tools in achieving the project objectives.

Financial problem is the most important problems in terms of results of this research. Financial problem occurs due to insufficient preliminary study, inflation and limited budget and financial resource. Financial problems and the problems in providing financial credits of project and the payments especially at the beginning and end of a year are general problems that client faces every year (it is usually difficult to provide the financial credits in the first two months of the new year). These problems have direct effect on contractor and causes delay in performance of work. Financial problems of client during the execution phase of a project lead to such problems for the contractors like paying wage of the workers and employees as well as the subcontractor, purchasing needed materials for the project, and paying the rent of machinery and equipments.

High rate of inflation and unpredictability of this rate has caused many problems for the contractor in ordering the materials and paying the rent of machinery and equipment.

Since in most projects governmental sector is the employer, the following problems are common:

1) The problems due to the rules and regulations
2) Financial problems
3) Problems in relation to the contract
4) Affording a project with financial credits
5) High rate of inflation and inadequate indexes of the CBL announcement
6) Problems of price of new works that do not exist in the tender and CBL

The delay in declaring the indexes and in some cases insufficiency of those indexes from the Iranian Organization of Management and Planning has created certain problems for the contractors and also has wasted a lot of time too and before the indexes are announced the contractors cannot take their money in bases of monthly statement. In this case, the earning of their money takes a long time.

Some respondents said that the process of checking and considering the monthly statement is slow and after sending the monthly statement by the consultant to the employer, it takes a long time for the contractor to get money from employer. In some cases due to the shortage of employer's liquidity, he prioritizes the contractors and in some cases some percentage of approved monthly statement is paid. This causes some problems for the contractors.

4-2 Suggestions

All parts in industrial project have to pay close attention to cost control. A contractor continually is needed to control cost of labour, material, and other resources on job, which necessitates a correct forecast of cash flow. The contractor's site management must make serious attention in coordinating cost control with the planning schedule of project. The contractors and clients should not only develop their control on cost of work items but also have to find new financial resource. This will not only help them with efficiency financial management but also will result in measures for controlling cost of any item. Main contractor should also pay to the subcontractor according to their work progress because subcontractor is the one who really does the work and has important role in the success of the project.

The correct assessment of the project, forecasting probable increase of prices, forecasting different financial sources in critical situations, decreasing time in paying money to contractors, having plans and calendar for paying money to contractors, choosing the contractors who don't have financial problems themselves, are the points that clients could do in order to decrease financial problems of the project.

Distributing money among personnel and subcontractors on time, having the financial policies according to the different situation, predicting financial sources in critical situations, having good relationship with the employers and consultant, tracking for receiving money from the clients, proper cognition from market and having good relationship with material supplier, plant and machinery owners, are the points that the contractor can consider to have better financial conditions and deal properly with financial stresses.

4.3- Tender and Bid and Contract

Contractor cannot complete a project on time unless he has submitted a bid for the project that adequately represents the cost to be incurred for the work. A contractor is successful that has the experience and skill to outbid.

The key factor in winning the contract is the contractor's expertise management in preparation of tenders, which are low enough to win the projects and high enough to make reasonable profits. The contractor's skill to prepare such estimates depends on his expertise in predicting future costs of materials, plant and equipment, labour, his ability to forecast problems that may affect the costs, his ability in finding new financial resource, and his experience in performing works with fewer prices.

Most of the industrial projects in Iran are awarded based on being low bidder in the course of competitive bidding. The contracts of the understudy projects are according to the Cost list Boklets of the Iranian Organization of Management and Planning. Every year this organization publishes a book that is called Cost List Booklet (CBL). This organization calculates work price on the basis of inflation rate, wages, and the price of materials, equipments and machineries for different works. In bids, contractors declare their suggested price according to the condition and situation of a project, the location of the project execution, and the equipment and machinery required to execute a project. This

price is awarded in percentage as the minus or plus to the items in the cost list booklet and contract.

In CBL, some coefficients are predicted like height coefficient, area coefficient, overhead coefficient, and layers or floor coefficient. These coefficients are allocated to projects according to the location and the type of those projects execution. The consultant and employer price the tasks and works with no fee prediction in CBL.
The organization of Management and Planning announces some indexes in three-month periods as adjustment of price according to the inflation rate, increase in wages and the price of materials. These indexes are allocated to the tasks and works, which are carried out in that period.
Some of the problems that respondents referred to in relation to the bids, contracts and offers are as follows:

1. In the documents of tender, some items of the tasks and works in project are not predicted
2. In the time of the tender drawing and plans are not complete
3. Contractors have not enough information about all items in the project and the details about it
4. In the process of a project execution more new tasks are ordered, some of them need special plans and equipment that contractors are not ready for them
5. Contractors claim that since such tasks are not predicted in the projects, they should not carry out them, as a result, more time is wasted and the execution of the project is delayed and in some cases the project may not accomplish

Some managers of the projects admitted that their low suggested price in the tender is due to the lack of information about the project situation, inadequate information in the plans and drawing, insufficient site visit and not enough information about the tasks difficulties in the exploitation sites.
Since in most projects the client is governmental sector, changing of a project contract and deleting or adding new items to contract is difficult. However, in the contracts, which the client is private sector such problems are less than the governmental sector.

Generally, the suggested price is the basis for selecting the tender winner. This means every company that suggested lower prices wins and the price suggestion always

influences technical suggestion. Effective factors in this relation for delays are as follows: focusing of employer and consultant on tender prices, lack of overall instructions about the study and analysis of the technical suggestions of contractor companies, lack of a score chart for comparing the suggested prices and technical analysis and not asking for the price justification before contracting.

Another issue the respondents referred to is false prediction of the project execution time. They said that due to the lack of information and shortage of drawing and plans, unclear amount of the tasks, not having a technical look at the tasks, lack of enough experience about doing the tasks and other issues ordered by the client are the factors that cause inadequate prediction of the required time to carry out a project.

To some extent, contractors justified the front-loading in tender to ease the cash flow in the early stages of construction. On some finishing items contractors quote low rates while large quantity structural items are given higher than the normal price. They do this one, in the hope that after the contract is awarded they can arrange to change the specification for low rate items. The result is being numerous requests to the client for rate revision during the construction of the project.

4.4- Suggestions

Instead of just considering financial factors, choosing the consultant and the contractor by the client as well as paying attention to all the aspects of the project in choosing the contractor is one of the points that can improve project performance. In addition, it is necessary to give more authority to the client's representative about some of the contract items and acceleration in decisions- making about problems of contract. It could be helpful for decreasing the problem to change some of the laws and items of the contacts according to the available requirements in a period.

Providing the complete and exact information in tenders' documents can help to decrease problems in this field. Some information such as amount of the work items, plans and drawing with their details completely, working items according to working subject, cost list boklet items according to the working subjects causes decrease in problems in this field. In addition, other issues that are important for decreasing the debate and dispute among contractor and client and consultant are acceleration in approval and communicating the price of new works or the price of works that are not in the contract or cost list booklet.

Contractors themselves can avoid giving low price in contract. A strong contractor can regulate the practices of members and discourage such practices. The contractors can avoid it using the help of their professional managers who understand the risks involved in construction and are capable in preparation of tender.

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The office for supervision and evaluation of designs, the publication center for the institute of higher education in education and research management 2006, 425-37