AN INVESTIGATION ON THE APPLICATION OF STANDARD CONTRACTS IN THE TURKISH CONSTRUCTION INDUSTRY

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ABSTRACT

AN INVESTIGATION ON THE APPLICATION OF STANDARD CONTRACTS IN THE TURKISH CONSTRUCTION INDUSTRY

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Construction contracts are one of the most important tools in the construction sector. They define the various aspects, obligations and relations between each party that are necessary to reach a common expected goal. They contribute to successful completion of projects. Turkish construction companies have successfully completed many projects in domestic and international venues and gained important experience in this respect; however, they still encounter problems in application. The aim of this study was:

- to analyze *Yapım İşlerine Ait Tip Sözleşme* (Standard Contract for Construction Works, YIATS) of *Kamu İhale Kurumu* (Public Procurement Authority KİK) and *Fédération Internationale des Ingénieurs-Conseils* (International Federation of Consulting Engineers, FIDIC) standard contract for construction;
- to identify problem areas and their causes in application of contracts;
- to compare YIATS and FIDIC contracts with respect to problem areas;

- to analyze views, experiences and recommendations of companies about YIATS and FIDIC contracts.

In this study, based on survey conducted on contract literature, questionnaire was applied to member companies of *Türk Müteahhitler Birliği* (the Turkish Contractors' Association, TMB). Applied standard contracts, Court of Cessation decisions and International Chamber of Commerce (ICC) arbitration awards were analyzed to determine problem areas. Telephonic and face-to-face interviews were performed with staff of companies for further information on their answers, their opinions and recommendations on problem areas. Additionally, hypotheses were tested: to determine the effect of existence of clauses on exposure of contractors to consequences of problems emerged in execution phase of contract; to analyze relationship between problems encountered in FIDIC or YIATS and financial, temporal and non-compliance problem areas; to analyze effect of cost determination method on emergence of problems related to these areas. These studies revealed main problem areas as: financial, temporal and non-compliance issues.

Keywords: construction contracts, law of contracts, Standard Contract for Construction Works, FIDIC, problem areas

ÖZ

TÜRK İNŞAAT SEKTÖRÜNDE STANDART SÖZLEŞMELERİN UYGULAMALARI ÜZERİNE BİR İNCELEME

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İnşaat sözleşmeleri, inşaat sektöründeki en önemli unsurlardan birisidir. Beklenilen ortak amaca ulaşmak üzere gerekli olan hususları, taraflar arasındaki ilişkileri, tarafların sorumluluk ve yükümlülüklerini tanımlamaktadırlar. İnşaat sözleşmeleri projelerin başarılı olarak gerçekleşmesine katkı sağlamaktadır. Türk şirketleri standart sözleşme uygulamaları ile yurt içi ve yurt dışında çok sayıda projeyi başarılı olarak tamamlamış ve bu kapsamda önemli tecrübeler edinmişlerdir. Bununla beraber, Türk inşaat şirketleri uygulamada sorunlarla karşılaşmaktadır. Bu çalışmanın amaçları:

- Kamu ihale Kurumu' nun (KIK) *Yapım İşlerine Ait Tip Sözleşme' si* (Standard Contract for Construction Works YIATS) ve Uluslararası Müşavir Mühendisler Birliği' nin (*Fédération Internationale des Ingénieurs-Conseils* (International Federation of Consulting Engineers, FIDIC) inşaat için standart sözleşmelerini analiz etmek;
- sözleşmelerin uygulanmasındaki problem alanlarını ve bunların nedenlerini tespit etmek;

- tespit edilen problem alanlarına göre YIATS ve FIDIC standart sözleşmelerini karşılaştırmak;
- inşaat şirketlerinin YIATS ve FIDIC standart sözleşmeleri ile ilgili görüşlerini, tecrübelerini ve önerilerini analiz etmektir.

Bu çalışmada, sözleşmeler üzerine yayınlanmış kaynak araştırmasına dayanılarak, Türkiye Müteahhitler Birliği'ne (TMB) üye inşaat şirketlerine anket uygulanmıştır. Uygulanmış standart sözleşmeler, Yargıtay kararları ve ICC tahkim kararları problem alanlarını tespit etmek amacı ile incelenmiştir. İnşaat şirketlerinde görevli kişiler ile problem alanları hakkındaki görüş ve tavsiyelerini elde etmek, ankete verdikleri cevaplar hakkında açıklayıcı bilgi almak amacı ile telefon görüşmeleri ve yüz yüze mülakatlar yapılmıştır. Bununla birlikte, sözleşme maddelerinin varlığının sözleşmelerin uygulanması aşamasında, müteahhitlerin problemlere maruz kalması üzerindeki etkisini belirlemek; YIATS ve FIDIC' te karşılaşılan problemler ile finans, zaman ve işin istenen şekilde yapılmaması problem alanları arasındaki ilişkiyi incelemek; sözleşme tutarı belirleme yöntemlerinin, bu alanlarda problemler ortaya çıkması üzerindeki etkisini incelemek maksadıyla hipotezler test edilmiştir. Bu araştırmalar, ana problem alanlarının: parasal ve süre ile ilgili konular ile işin, işverenin isteklerine veya şartnamelere uygun yapılmaması olduğunu ortaya çıkarmıştır.

Anahtar Kelimeler: inşaat sözleşmeleri, sözleşme hukuku, Yapım İşlerine Ait Tip Sözleşme, FIDIC, problem alanları

To My Parents

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ABBREVIATION	
ACE	: Association of Civil Engineers
DAB	: Dispute Adjudication Board
FIDIC	: *Fédération Internationale des Ingénieurs Conseils* (International Federation of Engineering Councils)
ICC	: International Chamber of Commerce
KIK	: *Kamu İhale Kurumu* (Public Procurement Authority)
KISK	: *Kamu İhale Sözleşmeleri Kanunu* (Public Procurement Contract Code)
MOU	: Memorandum of Understanding
PM	: Project Management
TBK	: *Türk Borçlar Kanunu* (Turkish Code of Obligations)
TMB	: *Türk Müteahhitler Birliği* (Turkish Contractors' Association)
TMK	: *Türk Medeni Kanunu* (Turkish Civil Code)
TMMMB	: *Türk Müşavir Mühendisler ve Mimarlar Birliği* (Association of Turkish Consulting Engineers and Architects)
YHGK	: *Yargıtay Hukuk Genel Kurulu* (The Plenary Board of the Supreme Court of Appeals)
YIATS	: *Yapım İşlerine Ait Tip Sözleşme* (Standard Contract for Construction Works)
YIGS	: *Yapım İşleri Genel Şartnamesi* (General Specifications for Construction Works)

CHAPTER 1

INTRODUCTION

This chapter presents the argument, objectives, and procedures of the investigation. It concludes with disposition of the dissertation. The main stages followed during the research are given under the heading of “procedure”. Disposition gives information about the content of the chapters in this study.

1.1 Argument

Turkish construction companies undertake private and public works both in domestic and foreign construction markets. During the execution of these works, they encounter different types of construction contracts especially in standard forms. Some companies encounter these upon first confronting these contracts and cannot protect their contractual rights properly due to their lack of familiarity with them. It is also a fact that many companies still encounter problems in the execution of the contracts despite their experience in different markets.

Construction works have gradually become more sophisticated, while having to be performed in a wide geography. Contractors encounter different laws, languages, practices and cultures while accomplishing these works. In order to overcome the difficulties emerging from this situation, the need for a common language and common understanding all around the world emerged and standard contracts were established.

The idea for the need of standard form contracts in construction works emerged in England and Ireland at the beginning of the 19th Century. This idea gave birth to a standard form contract called the RIBA Form, which was prepared by the Royal Institute of British Architects. It has been revised and published several times between 1909 and 1957. In the meantime, the RIAI Form was prepared by the Royal Institute of the Architects of Ireland. The various forms used before the Second World War have been unified with an agreement between the Institute of Civil Engineers (ICE) and the Federation of Civil Engineering Contractors in the United Kingdom. The ICE Form emerged in 1945 and was prepared for local use in the United Kingdom. Despite this, the various professional institutions around the world, adopted it to their local legal conditions and terminology and thus, they too made use of the ICE Form. When construction companies started undertaking contracts/projects abroad, there arose the need for standard contracts that could be used in other countries as well. Consequently, the Association of Civil Engineers (ACE) Form which is the first form of International Construction Contracts and Conditions of Tender was prepared. In 1956 the ICE Form for Overseas (Civil) Conditions of Contract was prepared by the Association of Consulting Engineers in the UK and the Export Group for the Constructional Industries with the approval of Institute of Civil Engineers.

The expansion of construction companies overseas led the *Fédération Internationale des Ingénieurs Conseils* (FIDIC-International Federation of Engineering Councils) and *Fédération Internationale du Batiment et des Travaux Publics* (FIBTP-International Federation of Building and Public Works) to investigate the appropriateness of current standard contracts. According to these investigations the ACE form was chosen as most appropriate and, based on this, the international contract condition for Civil Works, the FIDIC contracts, were formulated in 1957. These contracts can also be used for domestic purposes. The FIDIC Red Book (Conditions of Contract for Construction) has undergone various alterations in 1969, 1977, 1987, 1988, 1992, and 1996 and was originally based on the ACE Form, which in turn evolved from the ICE Form of 1945.

After 1972, Turkish contractors started working abroad in countries such as Saudi Arabia, Iraq, Libya *etc.* where they had to deal with the application of the original

FIDIC or ACE like contracts. In 1987 *Türk Müşavir Mühendisler ve Mimarlar Birliği* (TMMMB- the Association of Turkish Consulting Engineers and Architects) became a member of FIDIC.

In Turkish public sector, public entities prefer to use *Yapım İşlerine Ait Tip Sözleşme* (YIATS-Standard Contract for Construction Works) in their tenders unless there are prerequisites of the credit institutions providing funds to use FIDIC in that works. On the other hand, Turkish construction companies working abroad mostly encounter with FIDIC application both in public and private sector works. Being the basic standard FIDIC contract on construction, FIDIC Red Book was commonly used in these works. For these reasons, in this dissertation YIATS and FIDIC Red Book standard contracts were analyzed from the point of view of the contractors.

As the Turkish companies still encounter problems in the execution of the contracts in spite of their experience, it was noticed that there was a need to investigate and define the main problem areas and the causes behind them. It was also considered that such identification would help to reduce the risk of encountering these problem areas. In this respect, the aim of this study was to identify the problem areas; to determine the causes of these problem areas; to analyze the effect of existence of clauses on the emergence of problems and to understand the contribution of the clauses in preventing problem emergence; to analyze the relationship between the problems encountered in FIDIC or in YIATS and the problem areas and to analyze the effect of cost determination method on the emergence of problem areas.

1.2 Objectives

Construction companies face several problems during the execution of the contracts. This issue plays an important role in the development of the sector and in the ability of the construction companies to survive in competitive global markets. Accordingly, the objectives of this investigation were:

a) Identification of problem areas and the causes behind them in the application of YIATS and FIDIC (based on questionnaire, literature survey and interviews);

b) Analysis of YIATS and FIDIC standard contracts and comparison of these contracts with respect to main problem areas (based on the general specifications for construction works in YIATS and FIDIC Red Book)
c) Determination of whether or not the existence of a clause forestalled the emergence of related problems (based on statistical analysis of the answers given the questionnaire);
d) Recommendations to minimize the risk of emergence of these problems (based on data collected through the questionnaire; interviews and analysis of applied contracts).

1.3 Procedure

A preliminary literature survey on the types of construction contracts was first conducted. Based on information gained through this, a questionnaire was prepared in order to collect data on types and application of construction contracts used in Turkey; on the attitudes of the construction companies towards contracts; on the clauses in the FIDIC Red Book and on YIATS. The questionnaire, which is given in Appendices A1 and A2, was prepared and sent out to all member companies of the *Türk Müteahhitler Birliği* (TMB-Turkish Contractors' Association). With the help of repeated e-mails and contacts through mutual acquaintances 26 companies answered the questionnaire. The response rate increased through visits to the companies. In total, 31 companies out of one hundred and thirty seven answered the questionnaire. For statistical analyses of the data, help was obtained from the statistics department of the Middle East Technical University and Hacettepe University as well as a statistical consultant firm. Based on the questionnaire data, telephonic interviews were carried out with the companies which had answered the questionnaire. Thus, details about the application of the standard contracts and explanatory information about their answers to the questionnaires were also obtained. Contracts obtained from the companies were investigated. Of the contracts obtained from construction companies only nine were building contracts in YIATS or in FIDIC form. Additionally, thirty out of the thirty one companies which had answered the questionnaire were visited to make face-to-face interviews with the staff working on contracts. One of the companies could not be visited because it

had in the meanwhile closed down. Following these visits and interviews, a question on production drawings related problems was posed to the interviewees via e-mail. In total, 27 companies answered this question. In order to investigate the problem areas in execution of construction contracts, Courts of Cessation decisions were also analyzed.

There were two delimitations in this study; the first was about the selection of the sample for the investigation while the second was the selection of standard contracts, so that only FIDIC and YIATS were investigated as standard contracts. Data collected through the questionnaire was tabulated and analyzed using SPSS software for Windows®.

1.4 Disposition

This study, including this introduction, consists of five parts; Following the introductory chapter, the second consists of a literature survey about construction contracts, focusing on their main concepts, project delivery systems, types of contracts and legal aspects, including the Turkish legal system, and litigation, arbitration and alternative dispute resolution techniques (ADR), YIATS and FIDIC, as well as review of literature about problems encountered during the execution of the contracts, analyses of Courts of Cessations decisions and arbitration awards of ICC and comparison of FIDIC and YIATS with respect to these problem areas.

The third chapter explains the material and method used in the investigation. It provides information about the questionnaire applied; the contracts obtained and studied; interview with the staff of the companies and hypotheses tested.

The fourth chapter presents the results of the analyses. It provides information obtained through questionnaire; telephonic interviews; face-to-face interviews and analyses of contracts obtained.

In the fifth chapter are then presented discussion of the results and the conclusions reached at the end of the investigation, along with recommendations based on interviews and statistical analyses.

CHAPTER 2

LITERATURE SURVEY

This chapter presents a literature survey on the construction industry, contract law, and standard contract form. Construction industry, construction process and tendering are presented to provide general background for this research topic. This is followed by studying law of contract and construction contracts focusing on standard contract forms. This survey concludes with identification of problems encountered during the execution of the contracts supported by the investigation on ICC arbitration award decisions. Furthermore, comparison of FIDIC contract and YIATS is made with respect to problematic issues.

Even though a lot of resources were examined, the literature cited in this survey consisted of: forty books, twelve papers and two websites. The resources used for the literature survey are given under the heading of “Literature Cited”. Pertinent information obtained from these sources is summarized in the following paragraphs. Based on the literature survey, it is understood that the topic of “construction contracts” is an interdisciplinary research topic which has been studied mostly in the field of management, law and civil engineering.

2.1 The Construction Industry

The construction industry is one of the major production sectors of a country. As it is labor intensive, it contributes to employment rate, while creating demand for related industries such as cement, ceramics, paint and wood. As Nielsen (2004) points out, the construction industry is sensitive to the economy of the country. The

construction industry is mostly affected by public investments due to the fact that this sector is the major client in this industry. The state of country's economy and its construction industry are interdependent.

According to Eren (2001: 56), the term "construction" may refer to the act of:

- constructing new building
- making changes in an existing building
- making additions to an existing building
- repairing an existing building
- demolishing an existing building

Collier (1987: 24) defines "construction work" as:

> "…the planned integration of materials and components on a permanent site by means of skilled labor using tools and equipment to produce a permanent fixture on the land, according to a special design, including any fabrication done elsewhere according to the design of the work and prior to its integration into the work at the site."

According to Sözen (2000), the characteristics of a construction project are as follows: Each construction project is unique and has a single, definite purpose. Skills from various professions and organizations are used for the accomplishment of the construction project which has uncertainty and risk. It has several phases. Tasks, people, organizations and resources change as the project goes on from one phase to another.

Similarly, quoting from Harris and McCaffer, 2001, M.J. Riley and D. Clare-Brown, 2001, ILO, 2003, Nielsen (2004: 19-20) states that the construction industry has specific characteristics with regard to the management. These characteristics are as follows:

- Products of construction are large in scale and varied in kind.
- Construction projects require construction companies to set up temporary organizational structures at dispersed geographical locations, most often at a distance from central management.

- Project teams are highly fragmented, with many disciplines coming together for just a single project.
- The investment in research and development and in information technology is lower than other sectors.
- Construction companies have very high turnover.
- Profit in relation to turnover is lower compared to other sectors.
- The use of hired plant is widespread.
- Cyclical fluctuations in the volume of work are seen throughout the years.

Focusing on the Turkish construction industry, it is observed that the companies started working abroad due to the economic condition of the country. Nielsen (2004: 27), quoting from http://www.tca-uic.org.tr, points out that until the mid seventies, Turkish construction companies operated locally. Nielsen (2004) further explains that the main reasons why Turkish construction companies started working abroad were economic difficulties and political problems in Turkey.

According to Dayınlarlı (2001: 222), as the Turkish construction companies were working abroad in different countries and these countries all have different procedures, law and practices, Turkish construction companies gradually gained experience in the field of contracts executed in different countries. Dayınlarlı (2001) indicates that international contracts became important as the Turkish construction companies became involved in large scale projects abroad, which required the use of contemporary technologies to be more effective.

2.2 Construction Process

Construction process begins with the decision of the owner to have a building. Owner is the party that determines after an extensive study of various alternatives when a particular project is needed. Following this, owner must decide about the appropriate contracting procedure which provides him the most cost efficient solution (Hinze, 2001: 14-24) and about the cost determination method of the contract which, as Rosenau and Githens (2005) point out, affects the financial risk which is taken by the parties. In order to enable smooth and successful execution of

the contract, owner must pay attention to the contract documents. Hinze (2001: 145-147) pointed out the importance of contract documents.

> "Construction contract documents play an important role in the development of a project. They provide the bridge between the owner's conceptual image of a project and the actual construction of the physical facility…Drawings are important component of the construction contract documents. The drawings, also known as the plans or blueprints are the primary vehicle by which the physical, quantitative, or visual description of the project is conveyed…" (Hinze, 2001: 145-147)

Depending on the strategy of the owner, either to supply or outsource the design, a consultant engineer is employed either to prepare or to control design activities. After initial briefing stage, construction projects go through a series of stages; feasibility, preliminary design (sketch scheme), detail production drawings, contract preparation, construction and commissioning (Hughes and Murdoch, 2005: 167-168). The purpose and description of the construction is defined by architectural design which is complemented with structural, mechanical, plumbing, and electrical disciplines. Hughes and Murdoch (2005: 133-134) explain the functions of drawings as follows:

> "First, they form a model of the designers' ideas and help to articulate and predict problems with fabrication and with appearances…Second, drawings are the vehicle by which the designers' intentions are conveyed to the contractor…Third, drawings form a record of what has been done." (Hughes and Murdoch, 2005: 133-134)

According to Hughes and Murdoch (2005: 133), the aim of design is to transmit the information in a way that can be understood. Due to certain reasons such as time restriction, the owner may decide to announce the bid and award the contract with incomplete production drawings. However, Taylor (2000: 252) points out that:

> "…It is probable that some design remains to be completed, with the added distraction created by the newly appointed contractor who is already pressing for the information, having extracted from the tender and contract documents any weaknesses he may able to exploit." (Taylor, 2000: 252)

Before announcing the bid, contract drafting has to be done. Hughes and Murdoch, (2005: 98) state that in contract drafting phase, the owner must decide on the type of the contract form: standard or non-standard forms. Furthermore, they emphasized that drafting of non-standard forms demands great skill and knowledge, while

standard form of contract provides easier negotiation phase. However, it is important not to cause emergence of conflicting or contradictory clauses during the revisions (Hughes and Murdoch, 2005: 98).

If owner is public entity, the tender procedure is defined by laws. As Hinze (2001: 114) indicates that in public work projects, the bidding procedure is strictly outlined, while in private sector the process is often varied. In this phase, owner announces the bid by issuing request for bids. On the other hand, owner may prefer to award the bid by negotiation instead of competition. In bidding phase, prequalification may be a requirement imposed by owner on some projects (Hinze, 2001: 117). The activities of contractor begin after announcement of the bid by owner.

> "Once the contractor is informed about the project that is to be bid, a decision must be made about whether the company will be one of the bidders…Various factors must be considered in deciding if the company will bid, including the following: bonding capacity; location of the project; the owner; the owner's financial status; the architect-engineer; nature and size of the project; probable competitors; labor conditions and supply; availability of in-house staff and the company's need for work." (Hinze, 2001: 121)

Feasibility works are important in bidding stage. "The feasibility phase seeks to determine whether the project is capable of execution in terms of its physical complexities, planning requirements and economics…" (Ashworth, 2006: 202). In case, contractors face time scarcity for preparation of their offer, Powell-Smith and Sims (1990: 25) advise the contractors that they should never be afraid to seek an extension of time since the other prospective bidders are probably experiencing the same difficulties. Depending on the tendering type, negotiation can be carried out before awarding the contract. Cleland (1989: 243-245) defines negotiation process as follows:

> "Negotiation is a process by which parties with differing interests reach agreement through a process of communication and compromise...This kind of relationship frequently leads to add-on contracts and a continuing, profitable relationship between satisfied clients and contractors." (Cleland, 1989: 243-245)

During this negotiation phase, contractor can get benefit from his internal procedures derived from his experiences. "…Today some companies have established contract procedures for the negotiation as well as the administration of

contracts. They routinely inform and train the managers of projects that may involve contracts about the details of these contracting policies…" (Cleland, 1989: 242) Taylor (2000: 95) focuses on procedures by stating the following:

> "The procedures flow from the policy statement; they are the documents which describe often in some detail, how given risk areas are to be managed…It is important when drafting procedures to make sure that the reader understands which content is advisory and which is mandatory…" (Taylor, 2000: 95)

In the phase of awarding of the contract, The Aqua Group (1990) emphasized that the owner should bear in his mind that the lowest tender is not necessarily the best value for money. As Hinze (2001: 161) emphasized, after signing of the contract, the parties become liable for fulfilling their contractual obligations.

> "After the contractor has formally entered into a construction contract, a variety of obligations that require careful attention are imposed on the contractor. While many of these obligations are not directly related to the actual construction process, they are a means of communicating to the owner that the project is being delivered in accordance with the plans and specifications." (Hinze, 2001: 161)

After fulfillment of all contractual obligations by contractor the construction will be made ready for acceptance of owner. However, as Powell-Smith and Sims (1990: 155) point out practical completion may also be done when minor work still remained to be done. Upon acceptance of the work by owner, defect liability period starts. At the end of this period, in case, all the contractual obligations of the parties were fulfilled, the contractor submits a written discharge which confirms that he has received all the payment due by the owner.

2.3 Project Delivery Systems

Erant and Gündüz (2004: 33-34) define project delivery system as a way of organizing building and management of a construction project. As the choice of project delivery method affects the risk allocation between the parties, the authors further emphasize that the choice of project delivery system depends on factors such as ease of design; desire for design flexibility during construction; availability of suitable contractors / project managers; political considerations and budget constraints versus performance of completed project.

a)Traditional Construction Contracting (Design-Bid-Build): In this method, owner employs a designer to prepare the project and a general contractor for construction works. The contractor is entitled to be paid the contract price agreed by the parties before the beginning of the works. In this way the contractor takes most of the risk. According to Erant and Gündüz (2004), the owner may feel that he has more control over the project by establishing a liaison between the general contractor and the designer.

b) Design Build (DB) (Turnkey-Contracting): In this method, the owner draws up a single contract for both design and construction (Hinze, 2001:19). As a result, the contractor is responsible for design as well.

c) Build-Operate-Transfer Contracting (BOT): Dayınlarlı (2001) explains that this model is described in article 3/a of the Law No. 3996 and Article 3/b of Decree No. 94/5907 of Government as: "a special financing model used for the accomplishment of the projects having high technology and high material resource requirements. The contractor covers the cost of the project and his profit margin by operating the facilities himself."

d) Construction Management Contracting: In this method, the owner hires an agent in order to create a relationship with subcontractors. It is important that the contract management contractor hired by the owner is qualified and experienced (Erant and Gündüz, 2004).

2.4 Tendering

Tendering is the process started by owner to select contractor for the work. "A tender is an offer made by a builder to actually carry out work at a price stated" (Milne, 1980: 39). Porter (1980: 10) defines tendering as "…an invitation to offer based on the tendering documents". The aim of the tendering is to evaluate the offers in a fair competition to ensure the most beneficial conditions for owner. Hughes and Murdoch (2005: 119), on the other hand, point out purposes of tendering as: selection of a suitable contractor and requesting of the offer of a price from the contractor at an appropriate time. There are four main types of tendering:

open, selective, serial and negotiated tenders as explained in the following paragraphs.

a) Open tendering: This type of tender begins with the preparation of complete tender documents. The tender organization always has a right to select the most economical offer and to cancel the tender without having any obligation to bidders (Milne, 1980). Hughes and Murdoch (2005: 121) emphasize that "when the lowest bid is accepted, this can easily result in the owner awarding the contract to the builder who has least appreciation of the complexities of the projects; or the greatest willingness to take risks; or the lowest current workload of all the bidders…"

b) Selective tendering: In this method only competent contractors are invited to tender. This means that the acceptance of the lowest offer is not as risky as it is in open tendering. It reduces the risk of failure and it cuts down the cost of preparing estimates (Milne, 1980).

c) Serial tendering: Milne (1980) points out that serial tendering method is used when the construction program is of continuous character. In this method, the scope of work is divided into packages. The successful contractor can receive the orders for the rest of the work upon completion of each package Milne (1980).

d) Negotiated tendering: Initial competition can be carried out on the basis of a tender document. Milne (1980) points that negotiated tendering is used especially in sophisticated projects where there are not many contractors in the construction sector who can perform the work successfully.

2.5 Law of Contracts

A contract is a legal agreement which is made among parties who came together for a certain purpose. According to Collier (1987: 20), a contract creates an exclusive relationship (privity of contract) that lasts until the contract is performed, made void, or terminated. It enables one party to enter into agreements with others without relying only on the good faith of the other party (Bowers, Mallor, Barnes and Langvardt, 2004). Ansay (1996: 149) points out that not all agreements can be

called contracts and that a contract is a legal transaction which may be defined as an exchange of assents by two or more persons, resulting in an obligation to do or to refrain from doing a particular thing, which is enforceable by law. The contract must be enforceable and valid; this is possible only if the contract is lawful and made according to a country's legal system where it will be into force. According to the definition in *Türk Borçlar Kanunu* (Turkish Code of Obligations TBK), if the parties reach an agreement on their intentions (offer and acceptance), it will be sufficient to get an agreement.

> "The law of contracts deals with the enforcement of promises. The essence of a contract is its being legally enforceable promise or set of promises…Contracts give each of the parties the ability to enter into agreements with others with confidence that may be called on the law -- not merely relay on the good faith of the other party -- to make sure that those agreements will be honored" (Bowers, *et al.,* 2004: 223).

TBK does not include construction contracts; however, codes related to work contracts (*istisna sözleşmeleri- locatio conductio operis*) encompass construction contracts indirectly. Since TBK article 355 concerns work contracts where the subject is a product, and since a building/structure can also be considered as a product, it is covered by the work contracts as well. The only difference between them is that the product, which is the subject of the construction contract, is immoveable. The parties of work contracts are the contractor and the owner. Under certain contracts, contractor can also become liable for the preparation of plans and projects. In that case, the contractor is called "sole contractor" (Eren, 2001). Kaplan (2001) defines construction contract as a freewill (*rızai*) contract which makes both of the parties liable. According to this description, the owner becomes liable to pay the fee, and the contractor becomes liable to construct the building (Kaplan, 2001: 119-121).

Contracts can belong to different categories at the same time: For instance, they can be bilateral or unilateral; valid, unenforceable, voidable or void; express or implied; executed or executory. Definitions of these categories are given in the following paragraphs:

a) Bilateral and Unilateral Contracts: Bowers, *et al.* (2004: 227) state that if there is only one party making a promise the contract is said to be unilateral and that if there are two parties making a promise the contract is a bilateral contract where both parties exchange promises. As Hinze (2001) points out, in bilateral contract each party acts as both promisor and promise, and exchange promises.

b) Valid, unenforceable, voidable, and void contracts: Bowers, *et al*., (2004) explain that a contract which has all legal requirements necessary for a binding contract is called as a valid contract and that a contract which has the basic legal requirements necessary for a contract may be unenforceable for some other legal clause. Bowers, *et al*., (2004) further state that in case of a contract where at least one party has the legal right to cancel its obligations under that contract, then it is a voidable contract. In voidable contracts the injured party has the right to cancel the contract. The contract which does not create any legal obligation is a void contract (Bowers, *et al*., 2004). Articles 19 and 20 of TBK refer to the reasons which make a contract void. Article 19 of TBK indicates that the subject of contract can be freely determined by the parties if the subject of the contract is in accordance with the laws and is not unlawful. According to the article 20 of TBK, in case the subject of the agreement is impossible or immoral, the contract is void.

c) Written and verbal contracts: Contracts can be in written or verbal form. Collier (1987) points out the importance of written contracts because of the fact that verbal contracts, despite their legality and validity, can create problems due to the difficulty in proving the commitments of the parties.

d) Express and Implied Contracts: Bowers, *et al*., (2004: 228) define express contract as a contract in the formation of which the parties state the terms of the contract verbally or in writing showing their mutual agreement. On the other hand, if it can be understood from the related facts and circumstances that there is an agreement, then this type of contract is called an implied contract (Bowers, *et al*., 2004: 228).

e) Executed and Executory Contracts: When the parties are continuing to fulfilling their contractual obligations, then the contract is said to be executory. An executory contract turns to be an executed contract when the parties fully performed their obligations (Bowers, *et al.*, 2004).

2.5.1 Primary Ingredients of a Contract

The primary ingredients of a contract, which are the essential part of the enforceable and legally binding contract, can be defined as: mutual agreement, offer and acceptance, capacity and consideration. These aspects are presented below.

a) Mutual Agreement: Collier (1987) states that a contract must include mutual agreement and that it has to be made between the parties having the capacity to enter into a contractual relationship. The agreement must be realized with the declaration of will of the parties. The mutual agreement, which is the fundamental of the contract, consists of an offer done by a party to another and an acceptance of this offer by the other party (Collier, 1987). As Bowers, *et al.* (2004: 295) emphasize contract induced by misrepresentation, fraud, mistake, duress, or undue influence are generally considered to be voidable. Since there is an absence of real consent, there is also an absence of mutual agreement due to the lack of genuine intentions (Bowers, *et al.*, 2004: 295).

b) Offer and Acceptance: An 'offer' must be made by the offeror with the intention to make a contract. Additionally, it must be clear and it has to be communicated to the offeree. The contract is formed through acceptance which is a manifestation of assent to the terms (of the offer) made by the offeree in the manner invited or required by the offer (Bowers, *et al.,* 2004: 240-262). Ansay (1996:151) defines the term, acceptance, as "a declaration of intention to agree to the terms of the offer given by the party to whom the offer is made."

According to Article 9 of TBK, in case, the withdrawal notice arrives to the receiver before or at the same time with the offer, or arrives after the offer but communicated before his acknowledgement thereof, this offer is considered as it had never been made at all. This rule is applied to withdrawal of an acceptance as well. The letter of

the owner's acceptance should include statements of specific reference and clear acceptance of the offer (Collier, 1987). Furthermore, Collier (1987) points out the importance of the duration of an offer as the offeree lacks the power to bind the offeror to a contract after the original duration of the offer. According to TBK article 35, the offer is terminated by the death or insanity of either party only if the subject of offer requires a personal performance of offeror himself/herself (death person/incapable person). Otherwise the offer is binding within the reasonable period for heirs or incapable person (Collier, 1987).

d) Capacity: Capacity means the ability to incur legal obligations and acquire legal rights (Bowers, *et al*., 2004). The conditions of capacity to act are: to have discretionary power/ability to make fair judgment (Article 10 of TMK); to be mature (Articles 11 and 12 of TMK); not to be under interdiction or commission (Article 13 of TMK).

e) Consideration: Consideration is defined as a legal value, bargained for and given in exchange for an act or a promise (Bowers, *et al*., 2004: 279). The consideration is the main context of the contract. Collier (1987: 9) defines the term consideration as "something of value given by one party in a contract to the second party in exchange for something else." In other words, it is the reason for the existence of the contract.

2.5.2 Claims and Disputes

Common types of claims can be related with*:* injury or damage; delay or disruption; change in conditions; change in scope; time extension; termination and delayed payment. However, if the contractor is not satisfied with the decision, the matter turns into a dispute which is disagreement between the parties over some aspect of contract performance (Erant and Gündüz, 2004: 49).

Erant and Gündüz (2004) point out importance of the decision whether or not to file a claim as claims can increase the cost of the construction. In making the decision, it is necessary to take into account: whether or not the claim is legitimate; whether or not the amount involved is worth the effort; the expenditure and cost; the chances of

winning the dispute and recovering the amount claimed and effect of filing a claim on future business relationship with other party, other customers and potential customers (Erant and Gündüz, 2004: 50).

2.5.3 Dispute Resolution Techniques

Disputes may arise during the execution of the contract. If they are minor in nature, they can be settled amicably through negations. However, sometimes matters can turn into dispute which can not be easily settled (The Aqua Group, 1990). Dispute resolution techniques are the procedures to settle the disputes between the parties in a fair, feasible and acceptable way in the shortest possible time. These techniques are briefly explained below:

2.5.3.1 Litigation

After drawing up of the contract, issues, which cannot be resolved by the parties, can arise. "If the parties cannot amicably resolve the dispute, it is common for one of the parties to file a lawsuit against the other party which is the beginning of formal litigation in which a court decision may ultimately have to be made that is binding on both parties" (Hinze, 2001: 26). Redmond (2001: 8) emphasizes that litigation is the last resort for settling the dispute and that after the courts, there is nowhere else for the parties to go. Litigation is generally preferred in case publicity is desired and in case important or complex questions of law arise (Nixon, 1997). On the other hand, litigation may not be preferred because of the following reasons:

> "First, it may be unwise to entrust a dispute governed by a different, or "foreign", system of law to national judges whose qualifications and training are deeply rooted in their own legal systems…Secondly, the contract, and all correspondence and documents relating to the dispute, may have to be translated into the working language of the judge of the national court. Furthermore, the oral proceedings will necessarily have to be in the judge's own language…Thirdly, it is not always certain that the courts of a country having no connection with either the parties or the subject matter of the dispute will allow their judicial resources (generally paid for by that country's taxpayers) to be used for resolving disputes between "foreign" parties…Fourthly, with some exceptions (e.g. cases within the European Union) the network of treaties for the recognition of national court judgments is incomplete…Fifthly, court actions are open to public scrutiny" (Paulson, Rawding, Reed and Schwartz, 1999: 1-2).

2.5.3.2 Arbitration

Arbitration is a technique according to which the disputes of the parties are solved by the arbitrators who are authoritized as a result of a special agreement (Dayınlarlı, 1996). Paulson, *et al.* (1999: 2) emphasize that arbitration is a private, consensual process. By agreeing to submit disputes to arbitration, the parties agree to replace the public court system with a private system (Redmond, 2001: 8). Nixon (1997) recommends arbitration for the solution of intellectual-property disputes because of its confidentiality, speed, control by the parties on arbitration and the efficient determination of technical disputes by arbitrators. Arbitration can be determined either as a clause in the main contract or as a separate and additional contract to the main contract. As it has been indicated in the beginning of the second sentence of Civil Procedure Code article 516, the arbitration can be done with a separate special contract. In order for an arbitration agreement to be valid, it must be made in a simple written form. This means that the arbitration contract must be written as specified in Civil Procedure Code article 517 (Dayınlarlı, 1996).

2.5.3.3 Alternative Dispute Resolution (ADR) Techniques

ADR techniques are methods used by the parties to solve the dispute in a shorter and simpler way, compared to litigation, to save time and money during the execution of the contract. “The option of using ADR procedures may be considered either at the contract drafting stage, by inserting an ADR clause in the contract itself, or after a dispute has already arisen…” (Paulson, *et al*., 1999: 107). ADR techniques can be in the form of partnering, mediation, dispute review board, or minitrials. These techniques are explained in the following paragraphs:

a) Partnering: Partnering which is a voluntary approach to establishing teamwork among the contracting parties, emerged in the late 1980s. It enables the quick resolution of disputes at the lowest managerial level and provides open communication between parties (Hinze, 2001).

b) Mediation: This is a nonbinding method of dispute resolution. A mediator might be regarded as a third party who tries to convince disputing parties to agree on an

appropriate settlement of an issue (Hinze, 2001). “A mediator cannot compel the parties to reach a settlement, through he or she may take a very actively persuasive approach” (Paulson, *et al.*, 1999: 109).

c) Dispute Review Board: The board is assembled early in the life of a construction project, shortly after the award of the contract. Any dispute is reviewed in the board’s regular meetings. The board is expected to prepare a set of recommendations for each dispute it reviews (Hinze, 2001).

d) Minitrials: In minitrials, the parties to a dispute are free to draft their own procedures. The parties must first agree on the party who will hear the case and render a decision. A successful minitiral procedure enables the resolution of the dispute within three days (Hinze, 2001).

2.6 Construction Contracts

Construction contracts define relationship among the contracting parties together with their rights and obligations. They are used by construction companies according to the type of work, experience of the companies and bargaining power of the parties during the negotiations (Collier, 1987). Erant and Gündüz (2004: 43) point out that a construction contract defines who is responsible for what, how work is to be done, when it is to be done, what the finished product must be, who gets paid what and when and what happens when something goes wrong.

2.6.1 Obligation of Owner and Contractor

The contracts in the Turkish legal system are mainly dealt with in the TBK. In the following paragraphs, the mutual obligation and duties of the contracting parties are presented.

(i) Obligations of Owner

The principal obligation of the owner is to make payments to the contractor in accordance with the contract and to take over the accomplished construction.

Another important obligation of the owner is to provide the land to the contractor on time in order to enable the construction to start on the commencement date as specified in the contract. The owner has to give the necessary permissions, approvals or other decisions on time not to prevent the planned development of the construction (Kaplan, 1996: 119-171).

(ii) Obligations of Contractor

The main obligation of the contractor is to deliver the accomplished construction to owner as stipulated in the contract. In other words, as Kaplan (2001: 120) says, the contractor is liable for construction on the lot of the owner with or without supplying material. The obligations of the contractor include issues such as giving notice, delivery of construction and honoring commitments. Summarizing from Eren (1996: 63-86), the obligations of the contractor are explained below:

(a) to give notice: According to TBK, Article 357/3, in case it is understood during the execution of construction that the material supplied by the owner has defects or that the site is problematic in such a way that the accomplishment of the construction on time and according to the specifications is endangered, the contractor has the obligation to give notice to the owner. If he fails to do this, he will bear the consequences. This liability is also an extension of the obligation of "care and loyalty" on the part of the contractor.

(b) to deliver the construction: It is not specifically mentioned in TBK article 355. This obligation of contractor is understood from the context of the work. The owner, on the other hand, has the obligation to take over the construction when it is accomplished according to specification.

(c) to act professionally: According to the TBK article 356/1, the contractor is responsible for showing the same amount of care a worker shows in accordance with the contract of service. The contractor is liable, for example, to use the known technical rules in the foundations of construction, in materials and equipment.

(d) to honor commitments: The contractor must fulfill his obligations and liabilities as stipulated in the contract. The contractor's non-performance of his liabilities is defined in TBK article 360 according to which the owner has three options: He may either cancel the contract, or request reduction in payments; or the correction of the defect itself. The owner can cancel the contract even after taking over the building, in case the construction work is sub-standard or defective. If the contractor is in default, he must also compensate the owner.

2.6.2 Termination of Construction Contracts

Construction contracts can be terminated in case of emergence of conditions which make execution of the contract and the completion of construction impossible. In addition to this, if the actual cost exceeds the planned and estimated cost dramatically and if the owner did not cause this increase in the cost, the owner has the right to cancel the contract during and after the accomplishment of construction, as indicated in TBK article 367/1 (Eren, 1996: 89).

As Eren (2001: 90-92) points out, if the owner turns down the contract, he must pay a sum of money to cover the expenses of the contractor for the amount of the work the contractor carried out. This is because of the fact that the structure on the lot of the owner is an immoveable part of that lot and therefore its ownership also belongs to the owner. Furthermore, Eren (2001: 90-92) emphasizes that without having a justifiable reason, neither of the parties has the right to cancel the contract as the party which does so without having a legitimate reason must cover all the losses of the other party. On the other hand, according to the TBK article 369, the owner can terminate the contract unilaterally before the completion of the construction by reimbursing the contractor for the work done or losses incurred. In this case, the owner does not require a legitimate reason to terminate the contract. The TBK, Article 369 is a regulatory article (Eren, 2001: 90-92).

a) Termination of the Contract because of the Impossibility: The impossibility can emerge due to an unexpected occasion, or due to an action of the owner or of the contractor, as Eren (2001) states:

- According to the TBK article 368/1, if the construction becomes partially or wholly damaged before being taken over by the owner, who was not in default in taking over of the construction, the contractor can not receive the payment for the work he carried out. But according to the TBK article 117/2, if the owner did make some of the payments to the contractor during the accomplishment of construction, he may request the payments back.

- In case the construction was exposed to a damage caused by an action of the owner, the contractor has right to require the payment for the work he carried out and for the expenses which are not included in this amount (TBK article 368/2).

- Impossibility can emerge due to an unexpected development or circumstances such as the expropriation of the lot of the owner prohibition of construction on the lot of the owner, *etc.*

- According to the TBK article 371, if the contractor is an individual, the death of the contractor is a reason for the impossibility. This article is only applicable for individuals not for companies. If the contractor is a company, its dissolution is not a reason for the impossibility. The bankruptcy of the contractor does not create impossibility to complete the construction.

b) Termination of the Contract by the Owner: According to the TBK article 358/1, if the contractor does not start the work on commencement date specified in the contract or if he causes delay in the work without the owner's fault and if this delay creates impossibility in completion of the work on time, the owner can cancel the contract without waiting for the contract duration. The owner must act in accordance with the TBK articles 106-108 and give an appropriate time to the contractor to complete the work (Eren, 2001: 102).

c) Cancellation of the Contract by the Contractor: The contractor has the right to terminate the contract if the owner does not fulfill his obligation to supply material and the plot of land, or if the owner does not pay the fee, or if he does not take over

the building on time, or if he has difficulty in payment as specified in the TBK article 82 (Eren, 2001: 102).

d) Cancellation of the Contract by the Owner due to Defective Construction: The TBK Article 360/1 gives owner the right to avoid taking over the construction work having severe defects. According to the TBK Article 360/3, if the demolition of the defective construction causes large losses, the owner cannot cancel the contract. However, based on TBK 360/2, he can request the rectification of defects or make a pro-rata deduction in payment to the contractor (Eren, 2001).

e) Termination of the Contract due to Extraordinary events: According to TBK article 365/2, in case any event occurs which could not be foreseen or has been overlooked or has not been taken into consideration by both of the parties; and in case the appearance of this event hinders the work, the court may decide either to increase the fee or to terminate the contract (Eren, 2001).

2.6.3 Types of Contracts

There are various contract types which differ according to the time schedule, material cost, labor cost, contractor's profit, quality and risk of the parties. These are named mainly as: unit-price contracts, lump-sum contracts, cost-plus-fee contracts (cost-plus-percentage contracts, cost-plus-fixed fee contracts, cost-plus-incentive fee contracts) and the guaranteed maximum-share saving contract.

a) Unit-Price Contracts: Unit price contracts are based on the unit price for each work item of the construction. The contractor does not take any risk regarding the material and workmanship estimation. The owner benefits from the advantage for not paying the risk margin of the contractor. However, the owner takes the risk and must be very careful for material and workmanship spent by the contractor to complete the project within the allocated budget Collier (1987). Collier (1987) points out that the decision whether to choose working with unit price contracts depends on the amount of risk which is inversely proportional to the indefiniteness of the available information. Collier (1987) further states that this decision also depends on the amount of design information and experience of the bidders.

b) Lump-Sum Contracts: In lump-sum agreement, the contractor agrees to perform all work specified in the contract at a fixed price (Gray and Larson, 2000: 353-354). As Collier (1987) emphasizes, in this type of contract, the contractor takes most of the risk since he offers to accomplish the work for the stipulated sum in which he includes his profit. Gray and Larson (2000: 354) point out that lump-sum contracts "…are preferred by both owners and contractors when the scope of the project is well defined with predictable costs and low implementation risks." This contract provides reliable assurance of ultimate cost (Kerzner, 1995: 1105) On the other hand, lump-sum contract for owners is more costly to prepare as design specifications need to be prepared in sufficient detail (Gray and Larson, 2000: 354). It requires exact knowledge of what is wanted before awarding of the contract and substantial time and cost to develop inquiry specs, requests and evaluate bids (Kerzner, 1995: 1105).

c) Cost-Plus-Fee Contracts: Hauf (1976: 266) explains basic principle of cost-plus-fee contracts as follows:

> "The basic principle underlying cost-plus-fee contracts is that the contractor will be reimbursed by the owner for all costs attributable to the project and, in addition, he will be paid a fee for his services. Thus it is intended that the contractor be assured of a profit on his operations…" (Hauf, 1976: 266)

Some contractors do not prefer cost-plus-fee contracts because of the risk of disputes due to the dissatisfaction of the owners and due to the frustration of the supervisors (Collier, 1987). Kerzner (1995) states that this type of contract provides maximum flexibility to owner and that it minimizes negotiation and preliminary specification costs. On the other hand, Ferreira and Rogerson (1999: 405) point out that this type of contract has some disadvantages since it encourages specification of high-cost features and excessive design changes by owner which can cause time extension and increase in cost. In addition to this, Ferreira and Rogerson (1999: 405) further state that in these contracts there is lack of incentive for the contractor to complete the work. The various types of "cost plus fee" contracts are explained below:

1. Cost plus percentage contracts: Milne (1980) states that in this type of contract the contractor is paid the actual costs of the work and additionally an agreed percentage which should include all extra costs incurred by the contractor including overheads and profit. On the other hand, cost plus percentage contracts do not encourage the contractor to be efficient in use of labor, materials or plant.

2. Cost-plus-fixed fee contracts: In this type of contracts a fixed lump sum is added to the prime cost of the works (Milne, 1980). Hinze (2001: 175) states that this type of contract removes the incentive for the contractor to increase costs in an attempt to increase the overhead and profit allowance. This type of contract encourages the contractor to complete the work earlier (Milne, 1980: 22).

3. Cost-plus incentive fee type of contracts: An incentive fee can be arranged on many different items such as the delivery time, quality of the construction and savings on the costs (Milne, 1980).

4. Maximum cost-plus-fee contracts: This contract is "…like a lump-sum contract in its maximum cost and it is like a cost-plus-fee contract in that the contractor is paid a fee and the owner pays the costs of the work as they are incurred, but only up to the maximum cost" (Collier, 1987: 54).

d) Guaranteed maximum-share saving contracts: In these contracts, savings below the maximum guaranteed ceiling are shared between owner and contractor, whereas contractor assumes the responsibility for any over-run beyond the guaranteed maximum price (Kerzner, 1995). According to Kerzner (1995), this is the only type of contract where both owner and contractor have a real incentive to conclude the project at the minimum possible cost.

2.7 Standard Contract Forms

Standard contracts are extensively used as construction works have gradually become more sophisticated, while having to be performed in a wide geography. Bowers, *et al.* (2004: 224) define standardized contracts as contracts that are pre-printed by one party once an agreement has been reached by the other for signing.

Since the standard forms reflect the experience gained through earlier works, they enable savings in time and money. In this study the most commonly used standard contracts, *i.e.* YIATS and FIDIC were focused upon.

2.7.1 YIATS

Yapı İşlerine Ait Tip Sözleşme (Standard Contract for Construction Works, YIATS) was studied focusing upon the following headings: communication; governing law; language; rights and obligations of the parties; commencement; delays and suspension; acceptance and delivery; taking over; defects liability; measurement and evaluation; variations and adjustments; contract price and payment; termination; risk and responsibility; insurance; force majeure and disputes.

(i) Communication: General Specifications for Construction Works (YIGS) article 5 states that all kind of communication must be in written form. Standard public contracts permit communication to be made via post, courier, fax, electronic mail or other convenient ways with the condition that the written notification is executed in due time (YIATS, Clause 2.4).

(ii) Governing Law: YIATS refers to Turkish law as governing law. The court where the administration of the contracting entity is located is authorized for settlement of the disputes. On the other hand, for the tenders with international participation the disputes are settled by local court or arbitration as determined in international arbitration law no. 4686 (Clause 31).

(iii) Language: In YIATS, language used for communication and dispute resolution process is Turkish (YIGS, Clause 21). In case the contract is prepared in another language in addition to Turkish, the Turkish version is taken as basis for interpretation (YIATS, Clause 4).

(iv) Rights and Obligations of the Parties: In public procurement law (PPL) no. 4734, in *Kamu İhale Sözleşmeleri Kanunu* (Law on Public Procurement Contract KISK) no. 4735 and standard administrative specifications, the rights and obligations of the public entity, inspection officials and contractor are defined in detail. The

important aspects of these obligations are summarized as follows with reference to the related articles.

The Rights and Obligations of the Public Entity: The responsibilities and duties of the public procurement authority are stated in law 4734 including the entire process of bidding: announcement of the tender (Article 24); prequalification (Article 25), guarantees (Article 35); receiving and evaluation of the proposal (Articles 36 and 37); drawing up of contracts (Article 45); and declaration of the results (Article 47). In case the contracting entity does not fulfill its obligations as defined in Article 47, the bidder has the right to request his proven expenditure which in turn is returned to the responsible officials.

The contracting entity has to provide the technical documents to the contractor. According to Clause 11 of the *Yapım İşleri Genel Şartnamesi* (General Specifications for Construction Works YIGS), in lump sum contracts, the detailed construction drawings and specifications and other technical documents shall be submitted to the contractor when the contract is signed. On the other hand, in unit price contracts, the preliminary or detailed construction drawings, specifications and other documents are submitted to contractor when the contract is signed and detailed construction drawings may be requested to be drawn by the contractor (YIGS, Clause 12). Furthermore the contracting entity has the responsibility to give written notice to contractor for correction of all mistakes or defects determined during the approval process in the given period.

The Rights and Obligations of Inspection Officials: The inspection officials have the right and obligation to control and supervise the construction works for the adherence to the rules in force and the contract between the contracting entity and the contractor. The issue related to inspection is included in Clause 22 of YIATS and Clause 15 of YIGS. In case there are errors in the documents, the contractor has to give notice within 15 days after the delivery or taking over of the documents.

The inspection official has the right to make the contractor correct the defective works. According to Clause 16 of YIGS, the inspection official is authorized to force the contractor to demolish and to reconstruct the parts of the construction which

were defective. In case the material used is substandard or the workmanship is poor then the inspection official can insist on the rectification prior to handing over (YIGS, Clause 25). According to the Clause 35 of YIATS, the inspection official has to make sure that all wages to the workers are paid in full and on time.

The Rights and Obligations of the Contractor: The contractor has to provide the necessary insurance policy as regulated in Clause 9 of YIGS. Additionally, the contractor, together with his subcontractor, is responsible for any defect in the construction works for a period of 15 years after handing over (KISK, Article 30).

- Clause 26 of YIGS states that the contractor is responsible for the construction works until the approval of the final acceptance by the contracting entity.

- According to YIGS, Clause 12, the contractor may also be required to prepare design, as per the contract. The production drawings must conform to the pertinent bye laws and should provide all details necessary to complete the work. In case these drawings/documents are lacking in detail, the owner has right to ask for or make the necessary changes by himself. The contractor is responsible for the defects in the design documents he prepared. Even if design is approved by the contracting entity, the contractor remains responsible for the defects or lacks in these documents (YIGS, Clause 12).

- The contractor has to replace all material which is not in accordance with the contract specification or is not the same as the sample which was approved by the inspection officials within ten days of the written notice (YIGS, Clause 16).

- The contractor is responsible to provide suitable working condition to the inspection official. (YIGS, Clause 17).

- The preparation of the work program is in the responsibility of the contractor. The work program must be prepared by taking into account a yearly payment

plan for the duration specified in the contract, which has to be approved by the contracting entity (YIGS, Clause 18).

- The contractor hires the required subcontractors with the approval of the contracting entity (YIGS, Clause 21).

- The occupational health and safety on site are considered one of the major issues in YIATS. Responsibilities and duties are defined for the contractor in this respect in Clause 36 of YIGS.

- Clause 37 of YIGS states that, in case of accidents even if the contractor had taken the necessary precautions, he is liable for all the medical expenses and compensation. In case of death, the contractor is liable to pay compensation to the family of the deceased worker.

- The contractor must supply food to workers in case the construction site is far from residential areas (YIGS, Clause 38).

(v) Commencement, Delays and Suspension: In YIATS the commencement and completion dates as well as liquidated damages for delay are regulated in Clause 10. Clause 6 of YIGS explains the procedure for the parties to commence the work. Delay definition and issues that may be subject to delay procedure are regulated in the public procurement contract. According to Clause 14 of YIGS, in unit price contracts delay in delivery of design or other technical documents to the contractor, the contractor can not raise objection to this situation. However, if this situation also causes delay in completion of the work or part of the work, the delivery date is extended. Clause 30 of YIGS defines delay and conditions of liquidated damages. If the work is delayed, liquidated damage that is determined in the contract will be applied for each day of delay.

Termination of the contract is regulated in Articles 17, 18, 19, 20, 21, 22 and 23 of in KISK. The termination by the contracting entity can occur due to the bankruptcy, serious illness, *etc.* of the contractor (Articles 17 and 18). The contracting entity can also terminate the contract, in case the contractor fails to perform his obligation after

20 days of notice or in case it is determined that the contractor has engaged in deeds or behaviors outlawed with reference to Article 25 (Article 20). On the other hand, the contractor can terminate the contract in case he is unable to perform his obligations because of the insolvency which is outside of the force majeure by serving a notice in writing. However, the performance security is entered into accounts as revenue (KISK, Article 19).

(vi) Acceptance and Delivery: The acceptance is carried out in two steps as provisional acceptance and final acceptance. As stated in Clause 42 of YIGS, when the work subject to contract is completed, the contractor will apply to the contracting entity for provisional acceptance. The works carried out will be preinvestigated by the inspection official according to the instruction of the contracting entity. Based on this investigation, if the work is acceptable, the contracting entity forms an acceptance committee. On the other hand, if the work is not acceptable, a record indicating the reasons for defaults will be sent to the contracting entity.

- After provisional acceptance of the construction, the warranty period is started. As stated in Clause 43 of YIGS, the duration between the provisional acceptance and final acceptance is the period of warranty. Unless otherwise agreed, in construction works the duration of warranty period can not be less than 12 months.

- According to 44 of YIGS, during the duration of warranty, the contractor must do the maintenance and repair and he must protect the construction. The cost of maintenance and repair is borne by the contractor.

- The final acceptance procedure is started with a notice served by the contractor to the contracting entity indicating that the construction is ready for take-over (YIGS, Clause 45).

- Half of the bank guarantees of the contractor are released by the contracting entity after the taking over of the construction and the contractor's fulfillment of all additional conditions. The remaining half of the performance bond is

released after the delivery of the social insurance institution and approval of final acceptance protocol (YIGS, Clause 46).

- After the works are accepted, the contractor submits the as-built drawings (YIGS, Clause 12).

(vii) Taking Over: After the provisional acceptance, the risk and title of the construction passes to the contracting entity. Provisional acceptance is valid after the approval of the provisional acceptance protocol by the contracting entity. The occupation of the building does not have the meaning that the work is accepted. (YIGS, Clause 42).

(viii) Defects Liability: The procedure for the works which do not comply with the contract and its annexes is defined in Clauses 24 and 25 of YIGS. Additionally, in case the defects and deficiencies in the work, determined during the inspection for provisional acceptance, are technically minor and are not possible to be repaired and in case excessive expenditure is needed and time for this repair, an adequate amount of money is reduced from the bank guarantee (YIGS, Clause 42).

(ix) Measurement and Evaluation: Payment to the contractor is done on the basis of the measurement which is registered in green book and its annexes. These payments are based on provisional milestone reports (YIGS, Clause 40). Following the provisional acceptance, final measurement and evaluation are commenced to be based on the final milestone report (YIGS, Clause 41).

(x) Variations and Adjustments: The contracting entity is authorized to make necessary changes in technical documents subject to the contract. The contractor is obliged to continue carrying out the work in accordance with these changes. The contractor can be entitled to payment and time for these variations.

(xi) Contract Price and Payment: The contract type and price are determined differently for lump sum and unit price standard contracts in Clause 6 of YIATS. Clause 7 of YIATS states that all expenditures to perform works in the contract such as transportation, insurance, tax and duties are included in the contract price. The

expenditures related with the drawing up of the contract such as tax and duties including other costs are borne by the contractor (YIATS, Clause 8).

The payment place and conditions are regulated in Clause 12 of YIATS according to which payment is made on the milestone reports. However, in lump contract progress percentages foreseen in the tender documents are taken as the basis for the interim payment report. After the acceptance of the work, the procedure for the final payment report starts as defined in Clause 41 of YIGS.

(xii) Termination: The contracting entity can terminate the contract by applying liquidated damages for delay in case the contractor fails to fulfill his obligations specified in the tender documents or to complete of the work on time. However, this termination can be possible with the condition that this default by contractor continues after the 20 day notice of the contracting entity. Other reason for termination is related to the outlawed act and behavior of the contractor with respect to Article 25 of YIATSL and force majeure which prevents the fulfillment of the obligations of the contractor is also reason for termination (YIGS, Clause 48). Calculation of the works subject to termination is done in accordance with the general clauses. A protocol for the situation of the construction is prepared (YIGS, Clause 48). In case of termination of the contract, the contractor can not remove any material from the site without permission of the contracting entity (YIGS, Clause 49). Conditions of termination of the contract in case of death, bankruptcy, falling seriously ill, being arrested or convicted of the contractor is arranged in Clauses 50 and 51 in detail. According to these clauses, contracting entity has option to permit the continuation of the contract. However, in case of bankruptcy of the contractor or dissolution of the joint venture due to the death of the pilot partner, the contract is terminated.

(xiii) Risk and Responsibility: According to YIGS, the contractor has the risks of and responsibilities for: the mines (Clause 8); the site and the work including the damage to third parties (Clause 9); the projects (Clauses 12, 13 and 15); all the materials (Clause 15); subcontractors (Clause 21); additional works (Clause 23); the completed construction for fifteen years (Clause 26) and his employees (Clauses 35, 36, 37, and 38).

The contracting entity has responsibilities for: allocation of site (Clause 6) and delivery of projects on time (Clauses 11, 12 and 14). The contracting entity has the risks of: war, mobilization, riots and similar situations which are not covered by the insurance as well as the risks in usage of the completed and taken over part of the work (Clause 27). However, officials of the contracting entity have risks for compensation the damages and losses they caused as stated in Article 28 of KISK. According to Article 31 of KISK, inspection officials are liable together with the contractor for any loss or damage arising from the defects in the construction due to the deficiency in inspection and control for fifteen year period.

(xiv) Insurance: According to the Clause 9 of YIGS, the contractor is liable to protect the construction work and to get necessary insurances. In case of termination of the contract, these insurances continue until the work is tendered to a new contractor. Until such time the costs of the insurances are borne to the contractor up to a maximum of three months.

(xv) Force Majeure: "Natural disasters, legal strikes, epidemic cases, announcement of partial or general mobilization and similar circumstances are considered as force majeure" (KISK, Article 10). The contractor can claim for force majeure if the situation has not been caused by contractor's default. The contractor is required to serve timely and documented notice to the contracting entity.

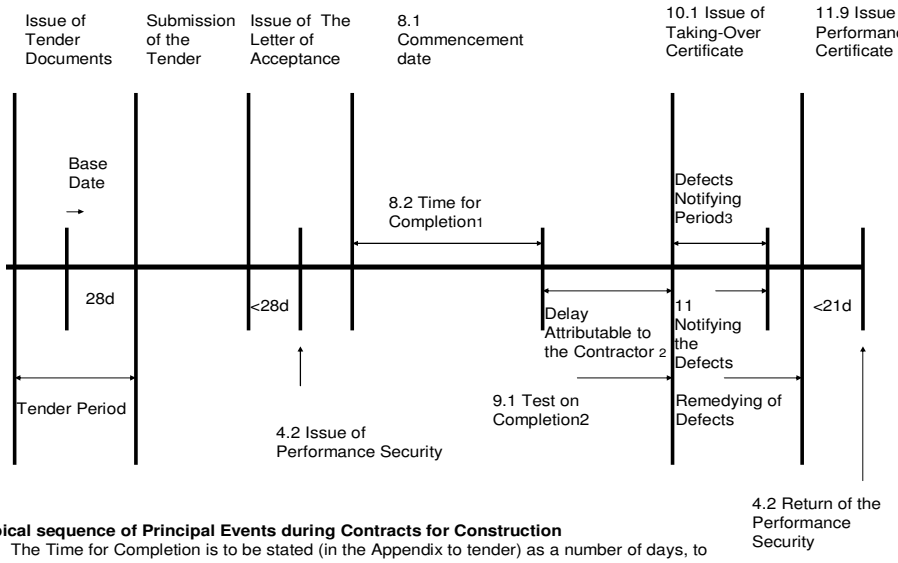
The contractor can not claim the cost for the losses emerged because of extraordinary events and natural disasters since such kind of losses are in the scope of all risk insurance. He can, however, request extension of time to compensate the delay caused by these extraordinary events or natural disasters (YIGS, Clause 27).

(xvi) Disputes: The contractor will apply in a written manner to the contracting entity within fifteen days after the emergence of the issue subject to dispute. He must explain the reasons of his claim in the application letter. The contracting entity must investigate the claim and inform the contractor about its decision in two months. The contractor is free to act in accordance with Clause 31 of YIATS, in case the contracting entity does not reply within this period or in case the contractor is not satisfied with the decision given by the contracting entity (YIGS, Clause 52).

2.7.2 FIDIC Contract

The *Fédération Internationale des Ingénieurs-Conseils* (International Federation of Consulting Engineers, FIDIC) contracts emerged from the need for international contracts, nevertheless, they can also be used in domestic works. FIDIC contracts define every phase of tendering and the construction process in detail. A FIDIC contract form consists of two main parts. These are general clauses and special application conditions.

The tender and the project phases of the FIDIC tender procedures are shown in Figure 2.1. The tender process begins with the issue of the tender documents and completed with issue of the performance security. This also marks the beginning of the contract phase. The project commencement date is the first milestone for the execution of the contract phase.



Typical sequence of Principal Events during Contracts for Construction

1. The Time for Completion is to be stated (in the Appendix to tender) as a number of days, to which is added any extensions of time under Sub-Clause 8.4.
2. In order to indicate the sequence of events, the above diagram is based upon the example of Contractor failing to comply with Sub-Clause 8.2.
3. The defects Notification Period is to be stated (in the Appendix to Tender) as a number of days, to which is added any extension under Sub-Clause 11.3

Figure 2.1 Tender and contract phases in the FIDIC contract process (FIDIC, 1999)

The issues and conditions are defined in FIDIC contracts to establish fair and sustainable contract environment for the parties concerned. The important aspects of FIDIC Red Book contract are given below. In this study, the term “owner” is used interchangeably with the term “employer” in FIDIC contracts.

(i) Communication: Communication is accepted as the information and the decision exchange allowing the contract to be smoothly executed and the rules to be established for the undefined issues for common understanding and fair relations. According to the general conditions Sub-Clause 1.3 “all communications recognized by FIDIC are written and the acceptable form and details of addresses are to be specified and where determinations are required by the Engineer, they shall not be unreasonably withheld or delayed”.

(ii) Governing Law: Governing law is an important issue for international works and has to be specified as to which country law governs the contract. Sub-Clause 1.4 states that “the contract shall be governed by the law of the country (or other jurisdiction) stated in the Appendix to Tender.”

(iii) Language: Clear and easy understanding of contract clauses is a critical issue for each party in international works. The Sub-Clause 1.4 indicates that “If there are versions of any part of the Contract which are written in more than one language, the version which is in the ruling language stated in the Appendix to Tender shall prevail.” The ruling language is defined as the language in which the whole or the majority of the contract document is written. If the language of communication is not defined, it is assumed to be the language used for written communication. On the other hand, not defining the language of communication may lead to conflicts. The same risk can exist if the “ruling” and “communication” languages are different.

(iv) Rights and Obligations of the Parties: The FIDIC contract defines rights and obligations of contracting parties before, during and after the construction. These rights and obligations are given in the following paragraphs.

- *Owner:* The owner is the party who needs the construction and who starts the contractual and tender processes. According to the Sub-Clause 2, the owner

must carry out the following tasks: He must provide access to the site (Sub-Clause 2.1), assist the contractor with permits, licenses or approvals (Sub-Clause 2.2) and provide project financing arrangements (Sub-Clause 2.4). He is also required to give notice and particulars of any claims against the contractor (Sub-Clause 2.5).

- *Engineer:* The engineer acts as a representative of the owner, or as an independent person or as a consultant and ensures smooth progress of the construction work on site.

The role of the engineer is defined in the FIDIC contract in Clause 3 in detail. When engineer exercises specific authority, then owner is assumed to have given approval. As Sub-Clause 3.2 states, the engineer can from time to time assign duties and delegate authority to his assistants and he can also revoke such assignment or delegation.

- *Contractor:* The contractor is obliged to perform the construction according to the conditions and requirements stated in the contract. The obligations and the role of the contractor are defined in clause 4 including the contractor's general obligations, performance security and contractor's representative. Contractor's general obligations can include some design work under new Red Book.

(v) Progress Reports: The contractor is obliged to prepare comprehensive monthly progress reports. According to Sub-Clause 4.21, this report includes descriptions of progress; photographs showing the progress on the site; information on manufacturers; contractor's inspections; copies of quality assurance documents; list of notices given by the parties; comparisons of actual and planned progress, *etc*. The report is also used as the base for the interim payments (Sub- Clause 14.3).

(vi) Sub Contracting: In FIDIC, there are two main types of subcontractors namely assigned (nominated) subcontractors and approved subcontractors. Issues related to sub contracting are governed through Clause 5. According to this clause, the contractor is responsible to make the payments to the nominated subcontractor while the engineer certifies the bill of quantities. The contractor can be requested by

the engineer to supply evidence that the subcontractor has received all the payments in accordance with payment certificates. In case of a failure of the contractor to submit this evidence, the owner may make to the subcontractor the necessary payments which make the contractor responsible to pay the same amount of money to the owner (Sub-Clause 5.4).

(vii) Commencement, Delays and Suspension: The FIDIC contract regulates commencement, delays and suspension under Sub-Clause 1.9 and Clause 8. The contract becomes effective when the letter of acceptance is received by the contractor or when the contract agreement is signed by both parties. The engineer gives a notice of commencement date to the contractor during the set time period (Sub-Clause 8.1). On the other hand, time for completion is given in the "Appendix to Tender" and the contractor is responsible to complete the work, including tests on completion within that time (Sub-Clause 8.2). The contractor is required to provide a work program within 28 days after the notice of commencement date has been issued. In case the engineer does not approve the program within 21 days and also does not raise any objections, the program is assumed to be accepted (Sub-Clause 8.3).

The contractor is required to give notice about the probable future events which may effect the execution of the work adversely (Sub-Clause 8.3). Extension of time for completion is given when delay is caused by the owner, force majeure, or by third parties. In case the contractor does not inform the engineer about the causes of delay within 28 days of their emergence, the engineer is not obliged to give an extension. The FIDIC contract states the procedures and methods to be followed in delays and any additional payments to the contractor to compensate the increased cost as a result of this delay.

The contractor is responsible to serve notice to the engineer whenever the works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the contractor within a reasonable particular time. In case the contractor suffers delay and/or incurs costs due to such missing documents, he has right for an extension or additional remuneration (Sub-Clause 8.9).

The engineer has the authority to suspend the work at any time. During the suspension the contractor is responsible for protection of the construction work against deterioration (Sub-Clause 8.8). If suspension is prolonged for more than 84 days, the contractor can request permission to proceed from the engineer. In case the engineer does not give the requested permission within 28 days, the contractor can give him notice and omit the part of the work which is affected. If the whole work is affected by the prolonged suspension the contractor can give notice of termination (Sub-Clause 8.11).

(viii) Acceptance and Delivery: The acceptance and delivery of the construction upon successfully completion of all the works and tests is regulated under Sub-Clauses 9, 10 and 11. Tests on completion, which are related to the tests of the systems such as lifts, electricity, auxiliary generators, sanitary systems, heating systems, *etc.*, are carried out upon completion of the installation of the systems in order to understand whether the systems are functioning properly and safe or not. The contractor is responsible for the carrying out of the tests on completion. He is obliged to give notice to the engineer indicating the date for the execution of these tests. In case the parties did not agree otherwise, the tests are carried out within 14 days (Sub-Clause 9.1). In case the contractor fails to carry out the tests, despite the notice of the engineer, the tests can then be executed by the owner's personnel. The costs of these tests are borne by the contractor (Sub-Clause 9.2). If some of the tests do not give satisfactory results, the engineer or the contractor can request to repeat the relevant tests under the same conditions (Sub-Clause 9.3). Performance certificate is prepared by the engineer after successful accomplishment of all the procedures for completion to show the evidence of the acceptance (Sub-Clause 11.9).

(ix) Owner's Taking-Over: The taking over process begins following the acceptance and delivery of the construction. Engineer is responsible to issue taking over certificate or refuse taking over within 28 days of receiving contractor's application. Minor work and defects can be completed after the issue of certificate (Clause 10).

(x) Defects Liability: Defects liability of the contractor is defined under Clause 11 which describes procedures and responsibilities under the defects notification period stated in the appendix to tender. If the contractor fails to remedy the defect by the notified date, the owner can have these defects corrected as defined in Sub-Clause 11.2. In this situation, the costs are borne by the contractor.

(xi) Measurement and Evaluation: The measurement and evaluation is the milestone to determine the contractual amount and resources spent on the construction and are the basis on which the final payment to the contractor is made. This procedure and rules are defined in Clause 12 of the Red Book. New rates can be determined in case: the measured quantity of the item is changed by more than 10% of the amount indicated in the bill of quantities; if this change in quantity causes an increase in the accepted contract amount by more than 0.01%; if this change in quantity causes an increase in the cost per unit quantity of this item by more than 1%, and if this item is not classified as 'fixed rate item' in the contract (Sub-Clause 12.3).

(xii) Variations and Adjustments: During the performance of the contract, the necessity of making alterations on design documents and construction can arise due to new regulations, newly developed material and systems or due to the needs of the owner. The variation requires adjustment on the price or delivery date. The engineer has right to make changes to the quantities, to the quality and other characteristics of the work items. Furthermore, he can omit or request additional work and make changes to the sequence or timing of the execution of the works (Sub-Clause 13.1).

(xiii) Contract Price and Payment: The contract price and payment conditions are major issues in contracts and should be clearly determined with definite statements. The contract price can be determined on the basis of the revised bill of quantities or schedules (Sub-Clause 14.1). The owner makes advanced payment to the contractor against the submission of bank guarantees (Sub Clause 14.2). The contractor has to submit monthly a statement for application for interim payment together with supporting documents (Sub-Clause 14.3). Sub-Clause 14.6 sets out procedure for issue of interim payment certificate by the engineer. Owner does not

have to make any payment unless receiving the approved performance security. Sub-Clause 14.7 defines the procedure for the advanced, interim and final payments and deadlines for the payments. In case the contractor does not receive payment as it was specified in Sub-Clause 14.7, the contractor is entitled to receive financing charges compounded monthly on the amount unpaid during the period of delay. The payment sequence and procedure in FIDIC is shown in the chart in Figure 2.2.

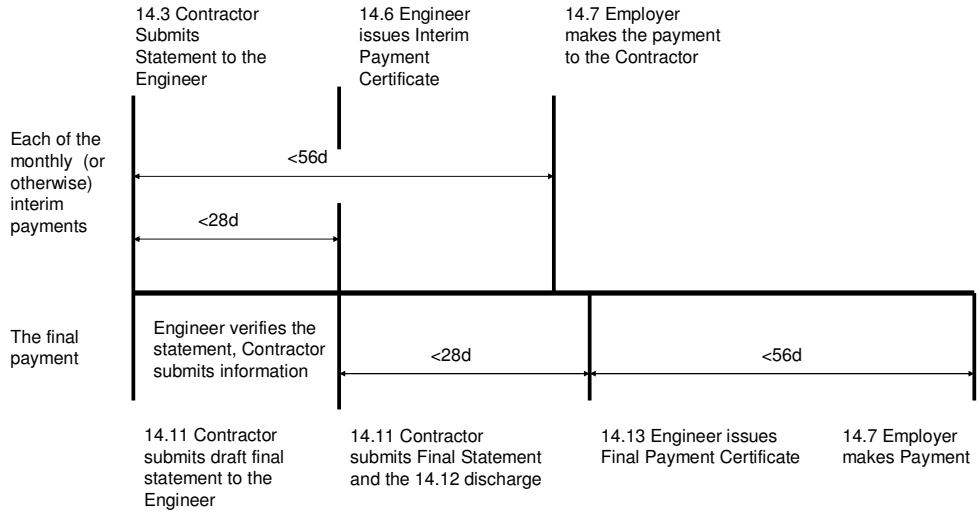


Figure 2.2 Payment procedure in FIDIC (Clause 14)

(xiv) Termination: A contract may be terminated in case any of the parties fails to honor the agreement. The right to terminate can be used by the contractor or the owner in the following manner:

a) Termination by the Contractor: The contractor has the right to terminate the contract in case the owner is in default; the owner did not make the progress payments which was approved by the engineer; the owner prevents or delays the approval of the engineer; the owner is bankrupt or in case the owner could not fulfill his obligations in the contract because of his financial situation.

b) Termination by Owner: The owner can terminate the contract, in case the contractor: fails to fulfill his obligations or to remedy the defects despite the notice given by the engineer; does not continue with the construction works as an indication of his intention not to perform his obligations; subcontracts all parts of the work; gives or offers bribe to anyone for a favor related with the contract or for showing favor or disfavor to anyone who is related with the contract (Sub-Clause 15.2). The owner can also terminate the contract at any time for his convenience by giving notice to the contractor. The reason for such a termination can not be the wish of the owner to continue the execution of the work by himself or by another contractor (Sub-Clause 15.5).

(xv) Risk and Responsibility: The risk and responsibility during performance of the work and execution of the contract must be defined clearly and must conform to the law, regulations and rules of the country of the contracting parties. Clause 17 covers the basis for indemnities by contractor and owner, the contractor's care of the works, the owner's risks, the consequences of owner's risks and limited liability. The contractor and the owner are responsible for indemnification and protecting each other, each others' personnel and their respective agents, from all claims, damages, losses and expenses (including legal fees and expenses) (Sub-Clause 17.1).

(xvi) Insurance: In order to protect the right and the investments of the contracting parties in case of hazards, insurance is an important issue in the performance of the work. The procedures and rules on how the parties share the payment received from the insurance company and the agreement of the parties about the scope and type of the insurance as well as the beneficiaries in the insurance policy should be defined. The insuring party insures the works, plant, materials and contractor's documents and any loss, damage, death or bodily injury which can occur to any physical property or to any person (Sub-Clauses 18.2, 18.3 and 18.4).

(xvii) Force Majeure: The natural or governmental occurrences or war conditions which hinder the execution of the contract or which cause delay in construction works, which are not under the control of any party and which can not be foreseen in the contract date are accepted as force majeure and the contractor may be entitled for extension of time and recovery of costs (Clause 19). In case the situation

extends beyond 140 days, either party may give to the other party a notice of termination of the contract which takes effect seven days after the notice (Sub-Clause 19.6).

(xviii) Disputes in FIDIC: In case any dispute arises, the aim is to solve it in a simple way within shortest time. Initially, the parties try to solve it amicably by themselves. In case it does not work, than they apply the dispute clause in the contract. Even though the disputes principally are resolved according to the ICC arbitration rules, the parties can agree on other arbitration institution or court in part two of the contract (Clause 20). The sequence and procedure for dispute is shown in the chart in Figure 2.3.

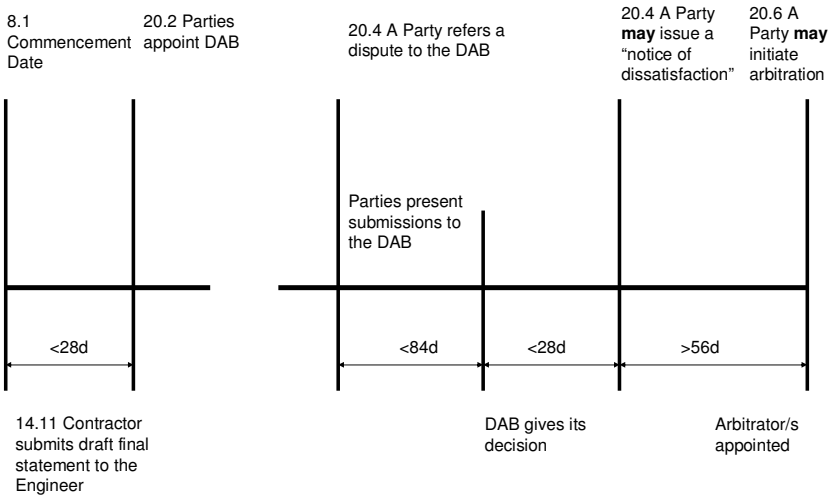


Figure 2.3 The sequence and procedure for dispute events (Clause 20) (FIDIC, 1999)

Appointment of the arbitration board is defined in the Sub Clause 20.2 according to which dispute adjudication board (DAB) can consist of either one or three members as it is stated in the appendix to tender. (Sub Clause 20.2) In case, the parties fail to appoint DAB members, either party, or both of them, should request the official

named in the particular conditions to appoint the member/s to the DAB (Sub-Clause 20.3). The procedure of obtaining the decision of arbitrator board is defined in the Sub Clause 20.4. In case, any one of the parties is dissatisfied with the decision of DAB, either party has 28 days to give “notice of dissatisfaction”. If neither of the parties gives such a notice, the DAB’s decision becomes final and binding at the end of the notification period. Unless settled amicably, any dispute in respect of which the DAB’s decision is not final and binding shall be finally settled by International Arbitration (Sub-Clause 20.6).

It is important to note that, the failure to comply with the DAB decision by one party allows the other party under certain conditions to go straight to arbitration (Sub-Clause 20.7). On the other hand, if a dispute arises when there is no DAB in place, then it may be referred directly to arbitration under Sub Clause 20.6 (Sub-Clause 20.8).

2.8 Problems encountered during the execution of the contracts

The problems encountered during the execution of contracts were investigated. These problems can be classified as: financial issues; temporal issues; compliance; production drawings and specifications and clauses.

a) Financial issues: According to the literature survey, problems related with financial issues appeared to be classified as: availability of money (Hughes and Murdoch, 2005: 337); cost overruns (Osama and Azam, 1999); re-valuation of the work after issue of interim certificate (Knowles, 2005).

Osama and Azam (1999) emphasize cost overrun problem. As Love and Heng (2000: 479) point out, cost overrun can be due to reworks. Focusing on the Middle East, Osama and Azam (1999) indicate the causes of cost overruns as modifications, lack of understanding, changes in legislation and regulations, poor documentation and local culture.

The cost of the work can increase due to the unbalanced risk distribution. “A great many building contract disputes arise because one party or the other does not

realize the fundamental truth that contracting is about the allocation of risk" (Powell-Smith and Sims, 1990: 3). On the other hand, Zaghloul and Hartman (2003: 423) point out the effect of risk distribution on cost of the work stating that: "…inappropriate risk allocation through disclaimer clauses in contracts is a significant reason for increasing the total cost of a project."

Interim certificates play important role in the payments to the contractor. The errors in these certificates cause financial problems. Interim certificates are based on the evaluation of the work by the engineer. However, the engineer reserves the right to make adjustment in the value of any interim certificate until the issuance of final certificate in order to make correction of any erroneous measurement. This situation creates risk for the contractor as Knowles (2005:120) describes:

> "Contractors and subcontractors rely upon interim certificates and payments to keep their businesses going. Major difficulties can arise where work certified and paid for in the early part of a contract is later re-valued at a lower price and an adjustment made in a subsequent certificate. The contractor who has already paid a subcontractor based upon the earlier certificate may have difficulty in recovering the overpayment." (Knowles, 2005: 120)

b) Temporal issues: Temporal problems appear due to: non availability of time; delay; intention of the parties; liquidated damages; difficulty in identifying responsible party causing delay; failure to meet time for performance; failure to meet deadline for payment and failure to give notices on time. As Hughes (2005: 337) points out, contractual disputes in construction arise because of the insufficiency of time available. Similarly, O'Brien and Zilly (1991) consider temporal problems as causes of dispute. Osama and Azam (1999), in their paper, focus on delay.

In case completion time of the work is not clearly identified in the contract, there can be dispute about timely accomplishment of the work. In this situation the intention of the parties is important as Eggleston (2004: 21) points out that the disputes emerge in the construction industry due to the approaches of the parties to temporal issues which have not been clearly expressed.

Reynolds (2002) emphasizes that liquidated damages is an important sanction for the breach of contract in the construction industry where the contractor fails to

complete the work by the contractual date of completion. Furthermore, Eggleston (2004:15) defines the extreme situation of dispute about temporal issues focusing on the concept of "time is of the essence":

> "The ultimate dispute on a construction contract is for an owner to assert that time is of the essence and to determine without paying whilst the contractor is claiming time to be at large and determining for non-payment…" (Eggleston, 2004: 15)

Identification of cause of delay and the responsible party can be a problem. Chappell, Powell-Smith and Sims (1990: 24) emphasize the importance of differentiating between the delaying event and the delay. In case the causes of delay originate from different parties or the delays are of different kind, it is difficult to decide how to treat the delay. The same difficulty can emerge in identifying the responsible party in case of delay due to the production drawings (Sweet, 1994). Meeting the time limits defined in the contract is important for the smooth execution of the work. Different failures in meeting deadlines have different consequences.

> "…Failure to meet times for performance may attract sanctions ranging from repudiation to damages, liquidated or unliquidated; failure to meet times for payment may result in determination or payment of interest; failure to give notices on time most commonly leads to a loss of entitlements; and failure to undertake administrative duties frequently attracts no sanction at all…" (Eggleston, 2004: 14)

c) Compliance: This problem area appears mostly as reworks. Focusing on rework, Love and Heng (2000: 479) conducted an investigation on the cost of reworks in two case studies which was determined to be 3.15% and 2.40%. They state (2000: 489) that the need for rework arises due to incomplete and erroneous information. They pointed out the importance of assurance of the quality in production drawings documentation. Another problem related with the compliance of the work can appear in practical completion phase in which engineer and contractor argue about whether or not practical completion has been achieved (Knowles, 2005: 203).

d) Production drawings and Specification: The problems about production drawings appear as: delay in approval of design documents; late issue of drawings and instructions; lack of information and impreciseness of production drawings and additional cost due to errors in the contractor's or subcontractor's production

drawings. The importance of production drawings and specification for the success of the work was emphasized by Branconi and Loch (2004: 119-122) who state that:

> "The importance of the contract for project success suggests that it should not be a technical issue, but the concern of top management…The concreteness of the specifications documentation will heavily determine future change orders or claims, as it defines what a changed requirement is." (Branconi and Loch, 2004: 119-122)

Contractors complain much about the late issue of drawings and instructions (Eggleston, 2004: 193). Furthermore, incompleteness of the drawings affects the performance of the work negatively as Cornes (1994:77) points out: "…contractor may become delayed by lack of information and make a claim against the owner for an extension of time for completion and the loss and expense caused by the delay to the project..." Supporting this statement, Hinze (2001: 165) indicates that in some cases, construction actually stops due to the lack of approval of specific submittals. On the other hand, another problem related with production drawings is that design errors can cause additional cost to the owner (Knowles, 2005). Design related defects are difficult to identify. Furmston (2006: 79) points out this problem by stating that even where it is clear who is responsible for design, there may be legitimate grounds for argument as to whether or not the defect is emerged due to the design. Cox, Morris, Rogerson and Jared (1999) emphasize that the costs associated with post contract award changes in design (drawings and specification) are 5-8% of the total cost. Cox, *et al.* (1999: 428) in their research indicate the cause of design changes as the designer's omission in tender documents, coordination defects in tender documents, forced upon the project from shop drawing coordination and change in owner's requirements.

e) Clauses: Dispute emerges when the contract clauses do not provide proper solution to any problem that may arise during the execution of the contract. Reynolds (2002) points out two types of claims: those which are claims under the contract provisions themselves and those which arise from a breach of the contract provisions.

Express terms are important for the prevention of misunderstandings. In the absence of express terms there must be implied terms which can cause conflict or

dispute due to misunderstandings (Eggleston, 2004: 193). Clarity of the clauses reduces the risk of dispute. This was pointed out by Hibberd and Newman (1999: 7) who emphasize the essentiality that the clauses are clearly expressed to avoid ambiguity which can nurture a dispute. Another important risk of dispute is the existence of the provisions which may leave the solution to the personal judgment. The expression of "to the architect/contract administrator/engineer's reasonable satisfaction" can be an example for this kind of provisions (Riches and Dancaster, 2004: 233).

Attention should be paid to translation. As Eggleston (2004:14) points out, in order not to cause misunderstandings, translation of the contractual documents is very important. Eggleston (2004: 14) emphasizes that the application of the phrases such as 'time of the essence' and 'time at large' needs to be handled with care.

Unbalanced risk distributing clauses can cause dispute. Jannadia, Assaf, Bubshait and Naji (2000: 42) explain the risk of unfair shifting of risk and importance of fair risk distribution as follows:

> "Unfair shifting of risk, transferring of all responsibility on a party that is not generally expected to control that risk, can result in that party having to spend time and effort looking for ways to stay alive in the project, usually to the detriment of the project itself…Fairness is an elusive concept, but the objective as defined here is to allocate the risk to the party best able to control it. An equitable contract serves as the first step in building cooperation and close coordination among the project participants, and providing a strong foundation for working out the inevitable disputes before they lead to divisive claims that can negatively affect the schedule and cost of construction."

Based on the previous researches, Loosemore (1999) points out that risk should be given to the party who can best control it. He emphasizes that not adhering to this principle increases the risk of conflict. In his study, he indicates that this principle of risk allocation requires that a party's power be proportioned with its responsibilities.

The problem areas determined through literature survey are classified in Table 2.1 with respect to the authors who expressed them. As it is seen at this table, problems of payment, temporal issues and rework were highlighted through the explanations of these authors.

Table 2.1 Problems identified in the literature survey

Problem areas	Problems identified in the literature survey	The name of the authors who expressed the problem
Financial	Cost overruns	Osama and Azam (1999)
	Cost of rework	Love and Heng (2000)
	Loss of productivity	O'Brien and Zilly (1991)
	Availability of money	Hughes and Murdoch (2005)
	Re-valuation of the previous interim certificate	Knowles (2005)
	Unfair shifting of risk	Jannadia, *et al.* (2000)
	Increase in cost due to the unbalanced risk distribution	Zaghoul and Hartman (2003)
Temporal	Delay	Osama and Azam (1999)
	Disruption	O'Brien and Zilly (1991)
	Delay caused by production drawings	Sweet (1994)
	Loss of productivity	O'Brien and Zilly (1991)
	Non availability of time	Hughes and Murdoch (2005)
	Liquidated damages	Reynolds (2002)
	Intention of the parties in respect of unclearly expressed time	Eggleston (2004)
	Failure in meeting time limits defined in the contract	Eggleston (2004)
	Conflict on 'time of the essence'	Eggleston (2004)
Compliance	Rework due to the poor workmanship	Love and Heng (2000)
	Conflict about the achievement of practical completion	Knowles (2005)
	Rework due to incomplete and erroneous information	Love and Heng (2000)
	Lack of quality in production drawings documentation	Love and Heng (2000)
	Properness and preciseness of production drawings and specification	Branconi and Loch (2004) and Sweet (1994)
	Changes during construction	O'Brien and Zilly (1991)
	Defective contract documents	O'Brien and Zilly (1991)
	Inconsistency due to the variety of contract document	Sweet (1994)
Production drawings	Late issue of drawings	Eggleston (2004)
	Incompleteness of the drawings	Cornes (1994)
	Lack of approval of specific submittal	Hinze (2001)
	Post contract award changes in design	Cox, *et al.* (1999)
	Production drawings errors	Knowles (2005)
Clauses	Claims under the contract provisions themselves by way of entitlement	Reynolds (2002)
	Claims arise from a breach of the contract provision	Reynolds (2002)
	Misunderstandings due to incompatible translation of the contractual provisions	Eggleston (2004)
	Misunderstandings due to implied terms	Eggleston (2004)
	Ambiguity in the clauses	Hibberd and Newman (1999)
	Provisions which leave the solution to the personal judgment	Riches and Dancaster (2004)
	Disputes due to unbalanced risk distributing clauses	Jannadia, *et al.* (2000) and Loosemore (1999)

2.9 Investigation on the arbitration awards of ICC

In order to investigate the problem areas in construction contracts the arbitration awards of ICC were investigated. There was difficulty in obtaining arbitration awards. This may be due to the privacy of these awards and due to relatively less number of awards available on construction contracts. Eight ICC arbitration awards which were on construction contract were analyzed. Through this analysis, it was observed that the awards were on problems of: payment (Final award in case no: 6230 of 1990; Final award in case no: 5759 of 1989; Final award in case no: 5622 of 1988); communication between parties (Partial award in case no: 5548 of 1988; Final award in case no: 5650 of 1989; Final award in case no: 5622 of 1988); good will of the parties (Final award in case no: 6230 of 1990); importance of documentation (Final award in case no: 5622 of 1988); risk distribution (Final award in case no: 6230 of 1990); impartiality of the engineer and bribe (Final award in case no: 6248 of 1990); fuzziness (Interim award in case no: 6610 of 1991); time, work scope, non compliance of the work with owner's requirements or specification (Final award in case no: 6320 of 1992).

The following contract clause caused serious contractual problem between main contractor and subcontractor by containing the risk concept shifting all owner's risk to subcontractor. This situation caused payment problem between contractor and subcontractor which lead the parties to apply to arbitration.

> "Art. 9 of the Subcontract provided as follows:
> In the internal relationship the Subcontractor will take upon himself and bear all obligations and risks arising from the Contract to be concluded between the Government of Z and [respondent] in such a way as if the Subcontractor had concluded a direct Contract with the Government of Z for his scope of supply and services." (Final award in case no: 6230 of 1990) (Arnaldez, Derains and Hascher, 1997: 88)

The following statement of arbitration award reveals the importance of the preciseness of the work scope and the extreme extent rate of the disagreement due to fuzziness in the contract.

> "A dispute arose between the parties in connection with their disagreement as to the scope and purpose of the Contract and as to their obligations there under…The parties disagree as to whether the Contract contained a production

drawings warranty (as claimant asserted), or a limited 2-year warranty (as defendant asserted)." (Final award in case no: 6320 of 1992) (Arnaldez, *et al.,* 1997: 337-338)

2.10 Comparison of FIDIC and YIATS with respect to the problem areas

Comparison of FIDIC and YIATS was carried out with clauses related to: financial; time; non compliance of the work with the owner's requirements or specifications. Production drawings issue was included in the comparison as it is describing the work in the contract.

2.10.1 Clauses related with financial issues

The comparison of FIDIC and YIATS with respect to financial issues was carried out under the headings of: adjustments for changes in cost; definition of new unit price; advance payment; schedule of payment; warehousing; issue of interim payment certificate and acceptance of work and delayed payment.

a) Adjustment for Changes in Cost:

For changes in cost for main inputs: FIDIC foresees changes (both increases and decreases) in cost (Sub Clause 13.8). In FIDIC for the adjustment for changes in cost, there must be a table of adjustment data in the contract (Sub Clause 13.8). YIATS only permits this adjustment for changes in cost, in case the related clause exists in the contract. This situation reveals that in case such a clause does not exist in the contract, the contractor can not have the right for payment in case of changes in cost.

For changes in cost due to the changes in taxes: In FIDIC, it is possible for the contractor to apply for compensation due to the changes in the taxes whereas in YIATS the contractor can not request adjustment for changes in cost due to the increases in taxes etc. (Clause 15 of YIATS) As it is seen, in YIATS, the contractor can be negatively affected and can have financial problem in case of increase in taxes.

b) Definition of new unit price: The conditions for determination of new unit price are different in FIDIC than it is in YIATS. In FIDIC new unit price is determined, under Sub Clause 12.3 related to evaluation. The new rate is determined based on relevant rates in the contract. In case, there is no relevant rate in the contract, new rate is determined from reasonable cost of the work executed taking into account reasonable profit. (12.3 Evaluation)

In YIATS, Clause 31 in unit price contracts, only the increase of the amount of the input is foreseen. “In case the increase in the quantity of work item is more than 20% and in case this increase causes increase of the construction cost 1%, the unit price of that work item will be revised using the formula defined in Clause 31”. (Clause 31) This formula results in relatively decrease in unit price when the usage of that work item increases. This clause is established to protect the right of the public entity in case the specified input increases the construction cost 1%.

c) Advance Payment: Advance payment can be made to the contractor for the mobilization. The contractor gives bank guarantee for the advance payment. This bank guarantee is valid until the refund of the advance payment through deductions from the interim milestone payments. In case the advance payment could not be refunded until taking over phase or in case the contract is terminated earlier the remaining part becomes due and is refunded immediately (14.2 Advance Payment).

The advance payment topic is similar in FIDIC and YIATS. However, the main difference is that public entity controls where the advance payment is spent. If the work is not started at a reasonable time period or if the advance payment is not spent according to its purpose, the realized advance payment is requested to be refunded.

d) Schedule of Payments: According to the Sub-Clause14.4 Schedule of Payments, in FIDIC, there is possibility for the contractor to get the payment for the works which are accomplished earlier than the time specified in the schedule for that works. In YIATS, the fund is appropriated for the years according to the contract price. As it is indicated in Clause 12 of Draft Contract, the contractor arranges the work program in accordance with the funds allocated in the budget. In case, the contractor

accomplishes more work than as it was planned, the public entity only pays for this extra progress, if there is enough financial resources. In this situation, the contractor does not have any advantages in increasing the rate of progress of the work. This may cause financial burden on the contractor due to financing the cost of the work completed prior to the scheduled date.

e) Warehousing: In FIDIC, when the materials are sent to the site and are stored appropriately, the engineer approve the payments of 80% of the cost to the contractor (14.5 Plant and Materials intended for the works). In YIATS, on the other hand, according to the Clause 18 of the YIGS, the payment is not effected for the warehousing which is not in accordance with the schedule. In YIATS, there is not any advantage for the contractor to stock the materials before the date determined in the schedule. This can cause increase in cost due to changes in material price.

f) Issue of Interim Payment Certificate and acceptance of the work: In FIDIC, no payment is made until the owner has received the performance security. In case, the work was not accomplished in accordance with the contract or in case the contractor failed to fulfill one of his obligations under the contract, the compensation is deducted from the interim payments. Engineer can make corrections or modifications in any previous payment certificate as the issue of payment certificate does not mean the acceptance of work. (14.6 Issue of Interim Payment Certificate). In YIATS, payment is made according to the progress of the work. In practice, it is affected by availability of financial resources of the public entity. In case of insufficiency of the budget of the public entity, the contractor may suffer financial problem due to the unpaid part of the accepted work.

g) Delayed Payment: In FIDIC, in case of delay in payment, the contractor is entitled to the payment due without formal notice or certification, and without prejudice to any other right or remedy (14.8 Delayed Payment). In YIATS, on the other hand, the contractor is given extension of time, in case the public entity did not fulfill his obligations due to the insufficiency of the budget (Article 19.4 of YIATS). As it is seen, in YIATS, the contractor can not get interest for any delayed payment.

2.10.2. Clauses related with Temporal Issues

The comparison of FIDIC and YIATS with respect to temporal issues were carried out under the headings of: commencement of work; suspension of work; extension of time for completion.

a) Commencement of Works: In FIDIC, in Sub-Clause 8.1 Commencement of Works, the commencement date is determined as the date within 42 days after the contractor receives the letter of acceptance. In YIATS, commencement of works is the date of the submission of site by public entity (Sub-Clause 10.1 of YIATS). In practice, the date of submission of a part of the site is considered as the commencement date as well. As it is seen, in YIATS, submission of partial site can be the criterion for the commencement date. This reveals the risk for the contractor not to receive the remaining part of the site on planned date.

b) Suspension of Work: According to FIDIC, the engineer can at any time suspend the progress of the work (8.8 Suspension of Work). If the contractor suffers delay and/or incurs cost as a result of suspension of work, the contractor can be entitled to an extension of time and to payment of cost (8.9 Consequences of Suspension). Additionally, the contractor can get payment for the plant and/or materials delivered to site (8.10 Payment for Plant and Materials in Event of Suspension). However, contractor can not be entitled to an extension of time for the consequences of his faults. In FIDIC, in case of prolonged suspension, the contractor can give the engineer notice for omission of the suspended work (8.11 Prolonged Suspension). In FIDIC, the contractor has right to suspend the work or to reduce the rate of work in case: "…the Engineer fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificate] or the Owner fails to comply with Sub-Clause 2.4 [Owner's Financial Arrangements] or Sub-Clause 14.7 [Payment]…" In such a situation, in case the contractor can also request an extension of time and payment of the cost including reasonable profit (16.1 Contractor's entitlement to suspend work). In case of suspension, in YIATS, the contractor is entitled only to time; not to payment. The contractor does not have the right of asking for restarting the work even if there is prolonged suspension. In this situation, the contractor does not have the right for suspension or termination of the contract in case of continuation of

prolonged suspension. This can cause the contractor to be subjected to financial loss.

c) Extension of Time For Completion: In FIDIC, the contractor is entitled to an extension of time for completion, if the delay is caused due to the conditions defined under Sub-Clause 8.4. According to this Sub-Clause, exceptional adverse climatic conditions, unforeseeable shortages in the availability of personnel or goods due to the epidemic or governmental actions, any delay caused by or attributable to the owner's side are among the causes of extension of time for completion. On the other hand, in YIATS, in case the additional works are carried out due to the situations which are not foreseen when the contract is signed, and this additional work has value up to 20% of the construction price (the Government is authorized to raise this ratio up to 40%), the time period needed for the additional work is given to the contractor (Sub-Clause 19.1 of YIATS). In YIATS, the contractor is given extension of time, in case the public entity failed to fulfill its obligation such as delay in payment, insufficient funds, and delay in submission of site (Sub-Clause 19.4 of YIATS). The extension of time is also given in case of force majeure. As it is seen, in YIATS, the contractor may have difficulty in case additional works remain below the 20% value limit.

2.10.3. Clauses related with "Non Compliance of the Work with Specifications or Owner's Requirements"

In FIDIC, in Sub-Clause 7.5 related to rejection, it is stipulated that in case any plant, material or workmanship is found to be defective or not in accordance with the contract, the engineer can reject the defective items indicating the reasons. The contractor must correct the defect and ensure that the rejected item complies with the contract. Additionally, in case, the items are required to be retested by the engineer the contractor must pay any cost due to the tests to the owner.

In YIATS, clause 24 of YIGS, the contractor can not alter the project by himself. He is liable to correct the part of the work which is not in accordance with the project. He has to bear the cost of correction. He cannot get additional payment when the accomplished work which is more than it was requested in the contract. Clause 25

of YIGS in YIATS, the contractor has to refund the money in case the work is not properly performed. According to this clause, in order to inspect the work, the supervising engineer can request the contractor to uncover the work which he thinks is defective. These inspections are done with the participation of the contractor and the supervising engineer. The costs of these inspections are borne by the contractor in case the work is defective. In case the contractor has been paid for the works which are defective, the payment is deducted from future interim payments by the public entity.

2.10.4. Clauses related with Production drawings

In the FIDIC Red Book, design is supplied by the owner. In the contract some design works can be required to be carried out by the contractor who then becomes liable for the specified production drawings. On the other hand, according to the FIDIC Yellow Book, the owner's requirements are defined. The contractor is liable for supplying design and the work in accordance with these requirements. There is a control and approval procedure for the production drawings. The contractor needs to get approval of the engineer for the production drawings which are specified in the contract to be approved. (Clause 5 of Yellow Book)

In YIATS, the detailed construction drawings can be required to be prepared by the contractor. If any alternatives become possible during the preparation of the project, the contractor must report these alternatives to the public entity. According to the approval procedure, the contractor is obliged to correct the defects in the projects according to the written instruction of the public entity within the given time frame and without any request for extra payment. The approval procedure does not relieve the contractor from his liability and the contractor is also obliged to prepare as-built drawings without any charge and deliver them to the entity after the provisional taking over. (Clauses 11, 12, 13 of YIGS) This procedure is similar in FIDIC. During the approval process of the project, public entity requests from the contractor to complete the missing points in the technical specification. This situation brings additional cost for contractor. However, contractor can not have the right to request payment for such instructions.

CHAPTER 3

MATERIALS AND METHODOLOGY

This chapter describes the material on which the research was conducted and the methodology which was used to evaluate the collected data. The material and the methodology used are explained in detail under their respective sections:

3.1 Material

The survey of standard construction contracts (YIATS and FIDIC) in accordance with the objectives presented in Chapter 1 of this dissertation was based on: a questionnaire; on telephonic and face-to-face interviews; on analyses of contracts obtained from the companies; on analyses of Courts of Cessations decisions and on ICC arbitration awards on construction contracts. The questionnaire, which is given in Appendices A1 and A2, was administered to member companies of the *Türk Müteahhitler Birliği* (Turkish Contractors' Association TMB). The total population of the sample was one hundred and thirty seven companies, out of which only thirty one responded to the questionnaire. Telephonic interviews were carried out with the companies for further explanatory information. Contracts were obtained from the companies. Of the contracts obtained, only 9 were building contracts, of which 5 were of the YIATS and 4 were of the FIDIC type. Courts of Cessation decisions and the ICC arbitration awards on construction contracts were studied to determine the problem areas in contracts. Furthermore, face-to-face interviews were carried out with the staff of 30 out of 31 companies which answered the questionnaire, as well as with the staff of two public entities and two experts on contracts.

3.1.1 The Questionnaire

The questionnaire consisted of four sections. The first section is about the general information about the company and about the structure of the organization, its capabilities and capacities. The second section was about the contracts. The third section focused on general information about FIDIC application; while the fourth section concentrates on the comparison between FIDIC and YIATS. The questions included in each section are described in detail as follows:

Section 1: With the help of the questions in this section, the aim here was to obtain information about the profile of the company in general. It also contained construction works the company undertakes and the sector (Turkish private, Turkish public, foreign private and foreign public) in which the company operates. Here, focus was on the structure of the organization, its capability and its capacity. The aim of first and second questions in this section was to obtain information about the organizational structure. It contains questions on the organization, the consultancy which is outsourced and the project management tool used in the company.

Section 2: The second section focused on contracts. The questions were about contract management items, contract types used by the company, the most preferred "contract cost determination method" of the company and the cost determination method mostly used. In addition to this, the companies were requested to provide information on: general provisions that they use in their contracts; the problematic issues and the causes of problems in contract management, in YIATS and in FIDIC contracts.

Section 3: The third section focused on information about FIDIC applications; whether the company could make changes in FIDIC contracts during the contract negotiation phase and where the company mostly encounters FIDIC. The companies were also asked when and where they first encountered with FIDIC, how their first experience was, which difficulties arose, why these difficulties arose, and how the companies could overcome these difficulties.

Section 4: The fourth section focused on a comparison between FIDIC and YIATS; in which sector the company mostly encountered with FIDIC, which characteristics of FIDIC are superior to Public Procurement Contracts and vice versa. It covered questions about the international efficiency of YIATS.

Addendum to Section 4: Design-related FIDIC clauses were subsequently added to question 2.5. These questions were posed to the companies during the face-to-face interview phase.

Section 5: Issues related to production drawings mentioned by the interviewees were transformed into a question. The problem areas thus identified were: mis-interpretation of the drawings; discrepancy between drawings and specifications; lack in detail; impreciseness of the project supplied by the owner; non compliance with the norms; delay in drawings supplied by the owner or by the subcontractor; delay in approval of drawings submitted to owner by the contractor; lack of understanding of owner's requirements and expectations in design supplied by the contractor; changes in project; lack of coordination between owner and contractor; lack of coordination within contractor's organization; lack in coordination of contractor with subcontractor; scarcity in designers with the knowledge of norms; language; standards of drawings; performance failure due to design and lack of detail in performance calculations.

3.1.2 Telephonic Interviews

Telephonic interviews were carried out with the staff of the construction companies in order to obtain detailed explanatory information regarding their answers to the questionnaire and their application of standard contracts. The staff who were contacted, were mostly managers dealing with contractual issues. The questions, from the questionnaire, were randomly posed in order to understand whether or not the answers obtained were correct. The companies were also asked about the causes of the problems encountered in YIATS; the advantages of FIDIC compared to YIATS; their recommendations for successful execution of the contracts (FIDIC and YIATS) and about fuzzy clauses and cost determination method.

3.1.3 Face-to-Face Interviews

Responses to the questionnaire were double-checked during these face-to-face interviews. Additionally, the staff of the companies were mainly asked to comment: on problems encountered during the execution of the YIATS and FIDIC contracts; on ways to prevent these problems; on the reasons of these problems; on how to overcome these problems; on whether or not problems due to the engineer's/supervising engineer's instructions emerge in the execution of the contracts and on whether or not fair risk distribution between the parties in contract diminished the risk of problem emergence. Company staff were also asked whether or not they could provide examples of executed FIDIC and YIATS contracts for this study.

3.1.4 Courts of Cessation Decisions

Decisions of Courts of Cessation obtained from www.kazanci.com.tr website were analyzed for the purpose of determining problem areas encountered during the execution phase of construction contracts. In total 92 decisions were obtained.

3.2 Method

Two delimitations were defined for the investigation. The first was regarding the choice of the sample in that the questionnaire was applied to companies that were members of TMB. The second delimitation was regarding the standard contracts that were focused on in the study. Thus, only FIDIC Red Book and YIATS contracts were considered due to their being extensively used in the construction sector.

There were three limitations which were encountered during the investigation. The first was the difficulty in obtaining a high response rate for the questionnaire. The second was the difficulty in obtaining the actual contracts from the companies. Company staff hesitated to provide these in order to avoid inadvertently disclosing confidential company information. The third difficulty was in obtaining information on arbitration awards for construction contracts. This difficulty arose mainly due to the confidentiality of arbitration awards.

3.2.1 Data Collection

This sub-heading presents how data was gathered through the questionnaire, telephonic and face-to-face interviews. It also covers how decisions of Courts of Cessation were analyzed. The questionnaire was prepared and sent to the sample consisting of all of the one hundred and thirty seven companies which are members of TMB. This questionnaire was also put on the TMB's website and it was announced to the companies that the questionnaire was available on the website. Fifteen-day duration was given for the completion of the questionnaire. Following this period the announcement expired. As a result, six companies answered the questionnaire. As it was a low response rate, the companies were asked again to complete the questionnaire and the questionnaire was sent through emails to contact persons as listed on the TMB's website. This was done three more times. While sending the emails to the relevant people, they were also contacted through mutual acquaintances. In total the questionnaire was answered by twenty six companies. The number of the companies which answered questionnaire was increased by visiting other companies. Consequently, thirty one companies answered the questionnaire. Statistical analyses were made according to the data obtained through this questionnaire. A company working on statistics was consulted for these analyses. Additionally, support was get from academic staff on statistics at Middle East Technical University and at Hacettepe University.

Furthermore, telephonic and face-to-face interviews were carried out. Even though thirty one companies answered the questionnaire, one of them could not be visited for face-to-face interviews as it had gone bankrupt and was closing down. As a result, thirty construction companies were visited and in these companies, interviews with thirty-seven people were carried out. Among them twenty-two were civil engineers; five were architects; four were lawyers; three were business administrators; three from different disciplines (international relation, economy and city planner). During telephonic and face-to-face interviews, the standard contracts, especially FIDIC and YIATS contracts with the subject of building, which were drawn up by these companies were requested. In addition to company visits, Public Procurement Institute and Ministry of Public Works and Settlement were visited. Furthermore, interviews with two FIDIC experts were carried out as well. Following

these interviews, a question, which included production drawing related issues mentioned by the staff of the companies, was sent via email to the interviewees. As a result, twenty seven companies answered this question. In this study, decisions of Courts of Cessation on construction contracts were examined in order to investigate the problem areas in contracts. These decisions were grouped according to the disputes for which contracting parties applied to court.

3.2.2 Tests of Hypotheses

The hypotheses, which are presented in the following paragraphs, were tested statistically by using SPSS for Windows® program. Chi-square tests were also performed in order to reveal relationship among the variables. All relevant cross-tabulations of the variables were made. Furthermore, risk analysis was conducted for chi-square tests which resulted in p value less than 0.05. These calculations were done in order to understand the degree of effect of one variable on the other. For these statistical tests help was obtained from the statistics departments of the Middle East Technical University and Hacettepe University. Additionally, consultancy was obtained from a statistics company. The hypotheses were formulated in order to see:

a) whether the existence of a clause forestalled the emergence of related problems

b) whether there exists a relationship between problems defined in Questions 2.7 and 2.8 (receiving payments, fuzzy clauses, default by both parties, default by owner, default by contractor and specifications) and the main problematic areas (financial, temporal and compliance)

c) effect of cost determination method on the emergence of problems about financial, temporal and compliance issues.

The FIDIC clauses were grouped according to the three main problem areas comprising of financial, temporal and compliance issues (Table 3.1). Data for the clauses covering these issues has been used for testing the three null hypotheses.

This data is presented in Table 3.1 which has been prepared by condensing Table C.2 (Appendix C) where the percentages of answers given by the companies to question 2.5 were tabulated and the related main problem areas are indicated in column called as "Problem Areas". The abbreviations used *i.e.* F, T and C in this column stand for Financial, Temporal and Compliance problems. These null hypotheses are as follows:

Hypothesis 1: (related clauses in Question 2.5)

H_0: Existence or absence of relevant clauses in contracts makes no difference to the exposure of the contractors to the consequences of the problems about financial, temporal and compliance issues.

Hypothesis 2: (Questions 2.7 and 2.8 versus related clauses in Question 2.5)

H_0: Problems about receiving payments, fuzzy clauses, default by both parties, default by owner, default by contractor and specifications related issues encountered in FIDIC or YIATS contracts are not related to the main problem areas *i.e.* financial, temporal and compliance issues.

Hypothesis 3: (Questions 2.3 versus related clauses in Question 2.5)

H_0: Problems related to financial, temporal and compliance issues are not affected by the choice of cost determination method of a contract.

Table 3.1 Problem areas according to clauses

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
1.	**General Provisions**		**91**	**14**
1.9.	Delayed drawings or instructions (procedures for delayed documents)	**T**	97	40
2.	**The Owner**		**86**	**33**
2.4.	Owner's financial arrangements	**F**	83	43

Table 3.1 Problem areas according to clauses (continued)

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
2.5.	Owner's claims	**C**	90	40
3.	**The Engineer**		**83**	**25**
3.3.	Instructions of the engineer	**C**	73	33
3.5.	Determinations (engineer's hearing to convince the parties and making a fair decision)	**F, T, C**	100	33
4.	**The Contractor**		**92**	**16**
4.2.	Performance security	**F, C**	90	17
4.9.	Quality assurance	**C**	90	17
4.10.	Site data (obligation of owner to provide site data to contractor)	**F, T**	97	27
4.11.	Sufficiency of the accepted contract amount (contractor's commitment for his satisfaction as to the correctness and sufficiency of the contract amount)	**F**	100	30
4.12.	Unforeseeable physical conditions (contactor's obligation to inform the engineer about unforeseeable physical conditions)	**F, T**	93	37
4.17.	Contractors equipment (contractor's responsibility not to remove any equipment from the site without the approval of engineer)	**F**	97	10
4.19.	Electricity, water and gas	**F**	97	17
5.	**Nominated Subcontractors**		**86**	**10**
5.3.	Payments to nominated subcontractors (contractor's obligation to make due payments to the subcontractors)	**F**	87	7
5.4.	Evidence of payments (engineer's right to request form contractor evidence of previous payments)	**F**	83	10
6.	**Staff and Labor**		**88**	**11**
6.2.	Rates of wages and conditions of labor (contractor's obligation to pay salaries to his employees at the rate not below average level of the sector)	**F**	60	13
6.4.	Labor laws (contractor's obligation to obey the labor law and to respect employees' legal rights)	**T**	97	13
6.5.	Working hours (observing of official working hours)	**T**	90	17
6.10.	Records of contractor's personnel and equipment	**F**	97	7
7.	**Plant, Materials and Workmanship**		**96**	**12**
7.4.	Testing (contractor's obligation to provide tools and documents for tests)	**C**	100	10
7.5.	Rejection	**C**	100	13

Table 3.1 Problem areas according to clauses (continued)

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
7.6.	Remedial work	**C**	100	17
7.7.	Ownership of plant and materials (appropriateness of plant and material to the law of the country)	**F**	97	10
7.8.	Royalties	**F**	77	13
8.	**Commencement, Delays and Suspension**		**94**	**34**
8.1.	Commencement of works (the date when the work is started)	**T**	100	30
8.2.	Time for completion (contractor's obligation to complete all the works or part of the works in the defined completion time)	**T**	100	37
8.3.	Programme (contractor's obligation to deliver the work programme to engineer)	**T**	100	23
8.4.	Extension of time for completion (contractor's request for extension of time to complete the work)	**T**	100	43
8.5.	Delays caused by authorities (contactor's pursuing of the necessary procedures in the offices such as municipality *etc.*)	**T**	100	37
8.6.	Rate of progress	**T**	93	30
8.7.	Delay damages	**F, T**	100	40
8.8.	Suspension of work	**T, C**	93	33
8.9.	Consequences of suspension (delay of the contractor due to the engineer's request for suspension)	**F, T**	90	40
8.10.	Payment for plant and materials in event of suspension (payment the cost of the plant and materials to contractor due to engineer's request for suspension)	**F, T**	87	40
8.11.	Prolonged suspension (contractor's right to request permission to resume the work from engineer)	**F, T**	83	30
8.12.	Resumption of work (determination of the materials *etc.* affected due to suspension)	**T**	80	30
9.	**Tests on Completion**		**94**	**17**
9.1.	Contractor's obligations	**C**	100	7
9.2.	Delayed tests (procedure in case the tests are delayed)	**T, C**	87	17
9.3.	Retesting	**C**	93	20
9.4.	Failure to pass tests on completion	**C**	97	23
10.	**Owner's Taking Over**		**93**	**23**
10.1.	Taking over of the works and sections	**F, C**	100	27
10.2.	Taking over of parts of the works	**F, C**	97	27

Table 3.1 Problem areas according to clauses (continued)

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
10.3.	Inference with tests on completion (owner's obligation to accept tests on the date of completion in case the tests could not be completed due to the failure of owner)	**C**	87	20
11.	**Defects Liability**		**94**	**20**
11.1.	Completion of outstanding work and remedying defects (notice to the contractor for the defective works)	**C**	100	20
11.2.	Cost of remedying defects (determination of the party who bears the cost of remedying defects)	**F, C**	100	27
11.3.	Extension of defects notification period (extension of defects notification period of the owner, in case building is not used properly)	**F, T**	97	30
11.4.	Failure to remedy defects (owner's right to carry out the work himself or his right to request the engineer to determine a new date in case contractor could not remedy the defects within specified time period)	**C**	100	27
11.5.	Removal of defective work	**C**	93	23
11.6.	Further tests (engineer's right to request repetition of the tests in case performance of the work after correction of the defects is suspected)	**C**	90	17
11.8.	Contractor to search (upon request of engineer, contractor's investigation reasons of the defects and determination on how the cost is to be paid with respect to the party causing the defect)	**C**	77	10
11.9.	Performance certificate (contractor's being deemed not to have fulfilled his obligation in case engineer does not issue performance certificate)	**F**	90	23
11.10.	Unfulfilled obligations (after the issue of the performance certificate, the continuation of each party's responsibility for unfulfilled obligation until they fulfill their own obligation)	**C**	97	23
12.	**Measurement and Evaluation**		**92**	**19**
12.1.	Works to be measured	**F**	97	20
12.2.	Method of measurement	**F**	90	13
12.3.	Evaluation	**F**	93	20
12.4.	Omissions	**F**	87	23

Table 3.1 Problem areas according to clauses (continued)

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
13.	**Variations and Adjustments**		**91**	**22**
13.2.	Value engineering (contractor's official proposals to engineer to reduce the cost and to accelerate the progress of work)	**F**	83	17
13.4.	Payment in applicable currencies (making the payment in the applicable currency in case the payment in contract is defined to be made in more than one currency)	**F**	97	10
13.5.	Provisional sums (determination of the provisional sum depending on the engineer's instruction)	**F**	90	20
13.6.	Day work (engineer's authority to instruct variation for small works on basis of the daily work)	**F**	87	17
13.7.	Adjustments for changes in legislation (adjustment of the contract amount according to the changes in law)	**F**	97	23
13.8.	Adjustments for changes in cost	**F**	100	50
14.	**Contract Price and Payment**		**97**	**16**
14.1.	The contract price	**F**	93	7
14.2.	Advance payment	**F**	100	13
14.3.	Application for Interim Payment Certificates	**T, C**	100	13
14.4.	Schedule of payments (procedure of how the payment to be made according to the availability of payment schedule)	**F, T**	100	17
14.5.	Plant and materials intended for the works (payment of the cost for allocated plant and material)	**F**	93	7
14.6.	Issue of interim payment certificates	**F**	97	13
14.7.	Payment	**F**	100	27
14.8.	Delayed payment (procedure to be followed in case the contractor does not receive the payment on time)	**F**	93	37
14.9.	Payment of retention money	**F**	93	27
14.10.	Statement at completion	**F, C**	97	13
14.11.	Application for final payment certificate (contractor's responsibility to submit to engineer certain number of final situation report upon receiving the statement at completion)	**F, C**	97	10
14.12.	Discharge	**F, C**	100	30
14.13.	Issue of final payment certificate (engineer's issuance of the final payment certificate to owner)	**F, C**	97	13
14.15.	Currencies of payment	**F**	100	7

Table 3.1 Problem areas according to clauses

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
15.	**Termination by Owner**		**99**	**19**
15.1.	Notice to correct (engineer's notice to contractor in case he did not fulfill his responsibility in the contract)	**C**	97	17
15.2.	Termination by owner	**C**	100	23
15.3.	Valuation at date of termination (engineer's determination of the value of the work completed up to date of termination)	**F**	100	23
15.4.	Payment after termination	**F**	97	17
16.	**Suspension and Termination by Contractor**		**94**	**27**
16.1.	Contractor's entitlement to suspend work (contractor's suspension of work in case engineer does not fulfill his obligation)	**T, C**	87	30
16.2.	Termination by contractor (conditions under which contractor can make termination)	**F, T**	93	27
16.4.	Payment on termination	**F**	100	27
17.	**Risk and Responsibility**		**95**	**17**
17.1.	Indemnities	**F**	97	20
18.	**Insurance**		**99**	**12**
18.1.	General requirements for insurances	**F**	100	17
18.2.	Insurance for works and contractor's equipment	**F**	97	17
18.3.	Insurance against injury to persons and damage to property	**F**	100	7
18.4.	Insurance for contractor's personnel	**F**	100	7
19.	**Force Majeure**		**90**	**18**
19.1.	Definition of force majeure	**T**	100	26
19.3.	Duty to minimize delay	**T**	87	10
19.4.	Consequences of Force Majeure (contractor's right to request extension of time due to force majeure)	**T**	97	17
19.5.	Force Majeure affecting subcontractor (impact of the subcontractor's force majeure situation on contractor's obligation)	**T**	77	13
19.6.	Optional termination, payment and release (parties' right to terminate the contract in case of prolonged force majeure situation)	**F**	83	20
20.	**Claims, Disputes and Arbitration**		**85**	**17**
20.1.	Contractor's claims	**F, T, C**	97	17

Table 3.1 Problem areas according to clauses (continued)

	Contract Clauses	Problem Areas	Clause included in contract (%)	Issue is problematic (%)
21	**Design**		**84**	**21**
21.3.	Contractor's undertaking (contractor's obligation for supplying design and documents complying with the law in the country specified in the contract)	**C**	86	25
21.4.	Technical standards and regulations (compliance of the performed work with contemporary technical standards, regulations and environmental laws)	**F, C**	93	18
21.8.	Design error (contractor's responsibility for the consequences of defective design supplied by the contractor)	**F, T**	89	50

CHAPTER 4

DATA COLLECTED

The results obtained from the research are presented in this chapter which also includes discussion of these results with reference to the literature survey and the objectives of the study.

Data obtained in this study is presented under five headings, namely: information obtained through questionnaire; information obtained through telephonic interviews; information obtained through face-to-face interviews; analyses of contracts obtained and analyses of Courts of Cessations decisions.

4.1. Information obtained through Questionnaire

The following sections present data about the construction contracts obtained through questionnaires administrated to the sample construction companies.

- 87.1% of the companies had been operating for more than 21 years. (Question 1.2).

- 77.4% of the response indicated that the companies were joint stock companies whereas 9.7% of them were limited companies and 9.7% were holdings (Question 1.3).

- The companies undertook construction jobs of various types, as shown in Figure 4.1. They had a wide range of operational areas which enabled them to be more flexible in undertaking projects available since it helped the company to survive the fluctuations in the country's economy. The result also revealed that since the companies were capable of working on a wide range of construction projects, they had a wider area of expertise (Question 1.4).

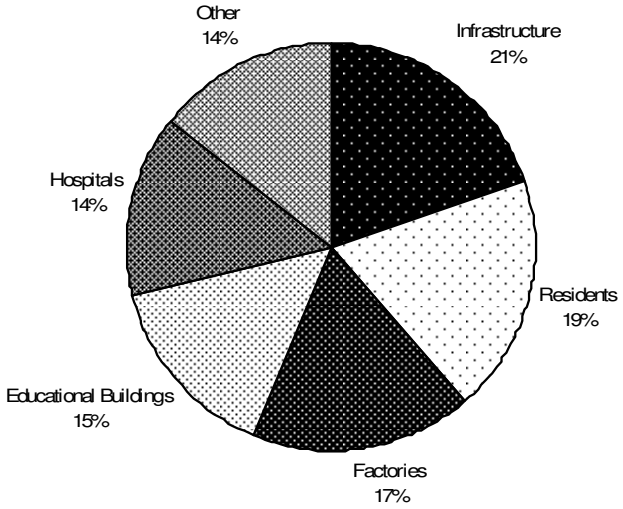


Figure 4.1 Type of construction

- According to the responses given, the companies preferred working abroad. Their order of preference was: working in the public sector abroad, the private sector abroad, the domestic public sector and the domestic private sector (Question 1.5).

- 54.8% of the companies that answered question 1.6, indicated that they had a "contract management" department. However, through the telephonic interviews and face-to-face interviews, it was understood that some of the companies which only had the function of contract management, considered having this function as having a contract management department and answered accordingly. The interviews revealed that 6.5% (*i.e.* only 2) of the companies had a "contract management" department whereas other companies had function of contract management within their organization.

- Departments existing in the organizational chart of the companies were, from the highest to the lowest frequency as shown in Figure 4.2 (Question 1.7).

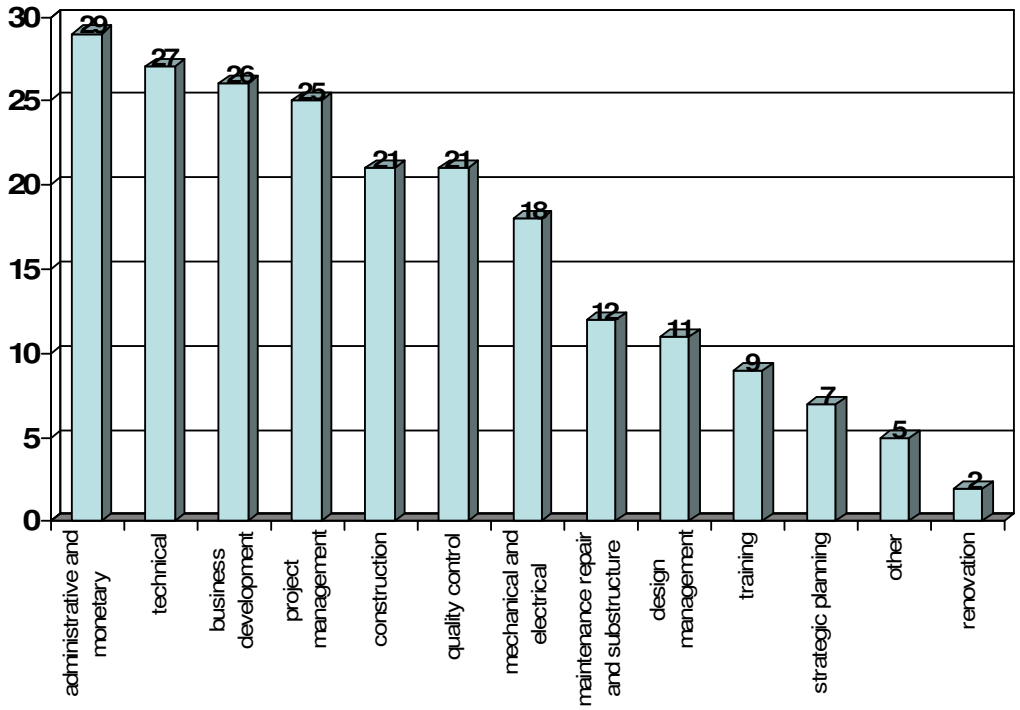


Figure 4.2 Departments existing in the organization of the companies

- Experts available in the organizations of the companies were ranked according to their areas of specialization e.g. experts on project management, standard contracts, YIATS, legal issues, FIDIC and arbitration (Question 1.8).

- Companies indicated mostly that they employ consultants for production drawings, subcontracting and legal experts. (Question 1.9).

- More than one project management software was used by most of the companies. The project management softwares mostly used by the companies were Primavera® and Microsoft Project® (Question 1.10).

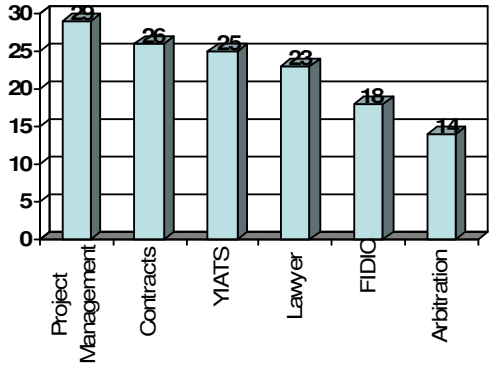


Figure 4.3 Experts available in the organizations

- Most of the companies had internal procedures for the execution of contracts whereas relatively few companies had internal procedures covering the feasibility works which enable them to make proper cost and risk calculation according to the tender documents. These feasibility works enable the company to decide whether or not to participate to tender (Question 2.1).

- As it is seen in Figure 4.5, standard contracts are widely used, although most companies use their own standard contracts, YIATS, and standard contracts prepared by the owner and modified during the negotiation phase, and FIDIC are generally used (Question 2.2).

- The usage of cost determination method was: firstly, unit price contracts and lump sum, secondly cost-plus-a percentage of fee and lastly the cost-plus-guaranteed maximum price ceiling (Question 2.3).

- Most preferred payment types were milestone and monthly payments however the most used payment type was monthly payments (Question 2.4).

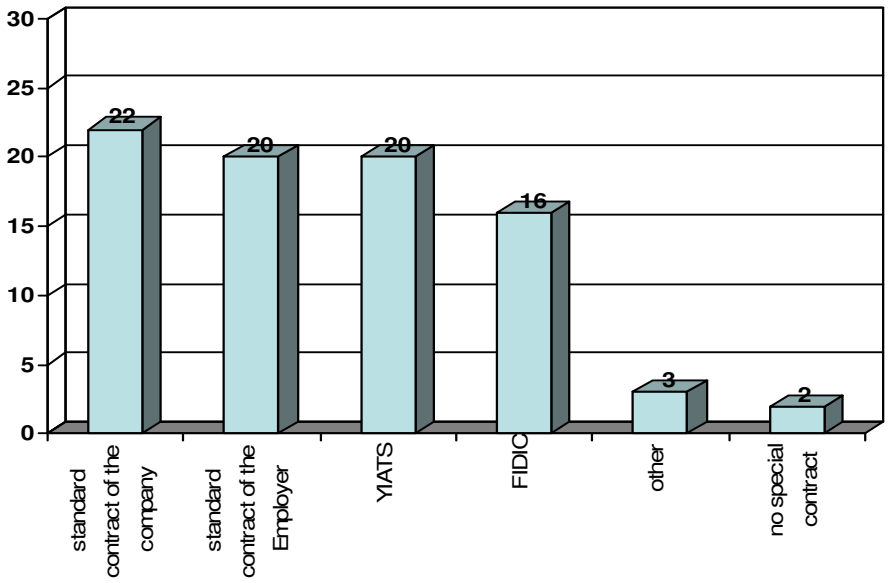


Figure 4.4 Contract types used by the companies

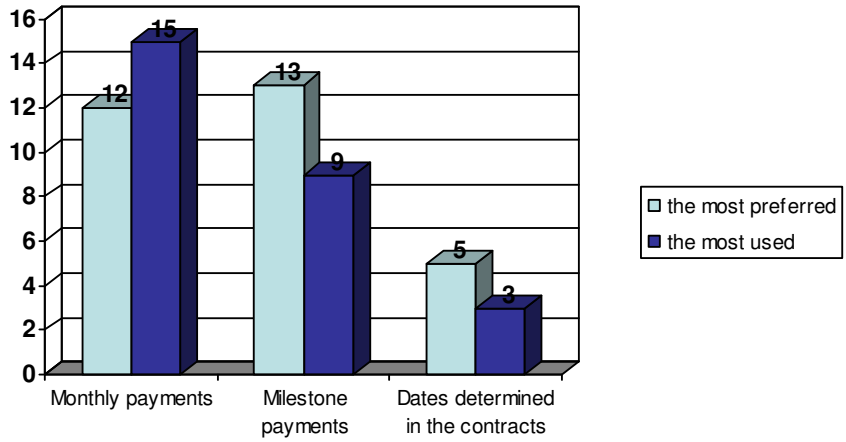


Figure 4.5 The type of payment most preferred and/or most used

- The content of Table C.1 was derived from the FIDIC “Red Book”. In the first column of the table, all of the FIDIC Red Book clauses were given. Only

production drawings related sub-clauses, last eight sub-clauses of the Table C.2, were quoted from the FIDIC “Yellow Book”, as these sub-clauses cover design liability of the contractor for supply of production drawings. The second column indicates the percentage of existence of each Sub-Clause. The third column indicated the percentage of the answers given by the companies with respect to their experience about arising of problems in the usage of relevant sub-clause. The issues covered by clauses which were evaluated by 30% and above of the companies were classified as problematic issues. The clauses, which were indicated to be existent in the contract by 85% and above of the companies, were classified as the mostly available contract clauses. The issues which were covered by the clauses which were indicated by the 30% and above of the companies as problematic and which were indicated to be existent in the contract by 85% and above of the companies were classified as critical issues. As an explanation of the meaning of the numbers in Table C.2 “descriptions” sub-clause under the heading of General Clauses can be given as an example: 100 presents the percentage of the answers of the companies which included this clause in their contracts. 7 indicates the percentage of the answers of the companies which encountered problems about this clause. As it was observed from Table C.2 all of the clauses had high usage frequency. Even though the clauses were put into the contract, in the related issues (Question 2.5). The analysis of the Table C.2 with respect to percentage of the emergence of problems revealed mainly financial, temporal, compliance and production drawings related issues as the highlighted problem areas:

- adjustment for changes in cost (50%);
- production drawings error (50%);
- owner’s financial arrangements (43%);
- extension of time for completion (43%);
- delayed drawings or instructions (40%);
- owner’s claims (40%);
- delay damages (40%);
- consequences of suspension (40%);
- payment for plant and materials in the event of suspension (40%);

- unforeseeable physical conditions (37%);
- time for completion (37%);
- delays caused by the authorities (37%);
- delayed payment (37%);
- permits, licenses and approvals (33%);
- determinations (33%);
- suspension of work (33%);
- right of access to the site (30%);
- engineer's duties and authority (30%);
- sufficiency of the accepted contract amount (30%);
- commencement of works (30%);
- rate of progress (30%);
- prolonged suspension (30%);
- resumption of work (30%);
- extension of defects notification period (30%);
- discharge (30%);
- contractor's entitlement to suspend work (30%).

- The following clauses appear in the contracts 75% or below:
  - general production drawings obligation (75%);
  - interpretation (73%);
  - owner's use of contractor's documents (73%);
  - instructions of the engineer (73%);
  - subcontractors (73%);
  - persons in the service of the owner (73%);
  - expiry of dispute adjudication board (73%);
  - replacement of the engineer (70%);
  - training (68%);
  - rights of way and facilities (67%);
  - owner's personnel (63%);
  - rates of wages (60%).

- Case wise analysis of the clauses revealed that even though following clauses mostly exist in the contract, they appear to be problematic during the

execution of the work. These clauses are: delayed drawings or instructions; right of access to the site; permits, licenses or approvals; determinations; sufficiency of the accepted contract amount; unforeseeable physical conditions; commencement of works; time for completion; extension of time for completion; delays caused by authorities; rate of progress; delay damages; suspension of work; consequences of suspension; extension of defects notification period; adjustments for changes in cost; delayed payment; discharge. The issues covered by these clauses seem to be very critical. These issues should be carefully managed.

- In project management problems emerged mostly in the payments of bills and in the existence of fuzzy clauses or in the absence of relevant clauses in the contract. In addition to this, the companies indicated that default by the owner and default by the parties caused problem (Question 2.6).

- The causes of problems in YIATS were ranked as follows: existence of fuzzy clauses or the absence of relevant clauses; payments of bills; default by owner; risk factor; default by contractor; default by the parties and specifications (Question 2.7).

- Causes of problems in FIDIC Contracts were ranked as follows: existence of fuzzy clauses or the absence of a relevant clause in the contract; payments of bills; default by owner; specifications; risk factor and default by parties; and default by contractor (Question 2.8).

- 58% of the companies indicated that they negotiate and bargain on contract clauses and make alterations when necessary (Question 3.1).

- 67.9% of the respondees encountered FIDIC contracts in the public sector (Question 3.2).

- The date when the respondees first encountered FIDIC varies between 1987 and 2005. Mostly this was in the late 1990‘s. They indicated that they first encountered FIDIC in Turkey, Kazakhstan, Russia, Poland, Tajikistan, Iraq,

Bulgaria, Uzbekistan, Albania, Pakistan, Jordan, Azerbaijan, and Saudi Arabia. It revealed the usage of FIDIC in Turkey (Question 3.5).

- 64.5% of the companies indicated that they were prepared and ready for FIDIC contracts when they first encountered them (Question 3.6) and that they did not have difficulties in their first experience with FIDIC (Question 3.7). On the other hand, 54.8% of the companies indicated that they were successful with their first experience with FIDIC contracts (Question 3.8). 9.7% of the companies who encountered difficulties in their first experience with FIDIC were able to overcome these problems. Due to the problems encountered during the execution of contract, these companies rated their experience as neutral even if the end result was successful. This shows the 9.7% difference between the percentages of answers given to questions 3.7 and 3.8.

- Most of the companies, who indicated that they were not previously prepared and ready for FIDIC contracts indicated the reason for the difficulty they had when they first encountered FIDIC as their being unfamiliar with FIDIC contracts (Question 3.7.1).

- FIDIC contracts were seen as advantageous because of their paying attention to the balance of interests of both parties. Fewer companies indicated that it being a ready form was seen as another advantage. On the other hand, the main disadvantage of FIDIC contracts was seen if modifications had been made by the owner in the part on special provisions (Question 3.9).

- 87.1% of the responses to Question 3.10 indicated that FIDIC was encountered mostly in international projects.

- 75.9% of the companies, who answered Question number 4.1, indicated that they do not consider that YIATS as being internationally efficient.

- Answers given to question 4.2 about where they were mostly operating revealed that the number of works they were undertaking in the public sector and the private sector works were approximately the same.

- Being the FIDIC contract internationally well-known (80.6% of the answers) and providing a balance of interest to the parties (77.4%) were seen as the characteristics of FIDIC which are superior to YIATS (Question 4.3).

- According to 41.9% of the answers, YIATS's being easier to understand and its being more familiar to the companies was seen as advantages. On the other hand, 19.4% of the answers stated that YIATS's being easy to apply as its advantage (Question 4.4).

4.2. Information obtained through Telephone Calls

After receiving the answers to the questionnaire, in order to verify the correctness and to increase the reliability of these answers, interviews were made with the staff of the companies by telephone. In addition to the verification of the answers given the questionnaire, the questions, which are presented in Appendices D1 and D2, were asked as well. The following paragraphs present the information obtained through telephonic interviews. These interviews revealed information about the application and experiences of the companies related to contracts. Within the scope of these conversations, additional information about the answers to the questionnaire was also gained.

- The telephonic interviews revealed that the main difficulties encountered in YIATS are related with: the specifications; lack in projects and details; escalation; payment; bill of material; modifications in specification; unexpected administrative requests of the contracting entity; bureaucratic obstacles; approach of the officials; extremely low offers.

- In FIDIC contracts the projects and tender documents are well prepared. All control procedures are also well-defined. The risks are fairly shared.

- The importance of an inspection team in FIDIC and of good relationships with them are emphasized.

- The importance of goodwill and intention of the parties for smooth performance and execution of the contracts are also expressed.

- In FIDIC, fuzzy clauses appear through modifications of the standard clauses, such as additions or omissions of the clauses. The original clauses are thought to be well-defined and clear enough.

- In FIDIC, lump sum is mostly used as the projects are well-defined. On the other hand, in YIATS, the lump sum price determination method tends to be gradually used more. It was also remarked that this situation increases the risk to the companies which affect their bidding price.

- With respect to some of the companies' point of view, contract management department is perceived either as having only the function or as having the department itself in the organization chart.

4.3. Information obtained through Interviews

During the interviews with the staff of the construction companies the problematic areas were discussed. The obtained information through these interviews are summarized below under ten headings: financial issues; temporal issues; non compliance of the work with owner's requirements or specifications; production drawings; risk distribution; fuzziness; engineer; legal issues; and other. The number of the companies which expressed the statement is indicated within brackets next to the relevant statement.

a) Financial issues:

Problems related with financial issues:

- The main problem in FIDIC and in YIATS is about financial issues. (23 companies) There can be financial problems due to: the changes in costs of materials, production drawings, delay or suspension of the payments. In general, the budget of the administration is less than it is needed for the work which is to be carried out. This situation prevents the efficient accomplishment of the work. The insufficiency of the budget delays and prevents the payments to be made. On the other hand, it was emphasized that the credit is sometimes used for the purposes other than for which it was taken. Sometimes the budget is changed due to mismanagement of funds or due to the changes in government. This situation affects the cash flow of the project. The change in cash flow causes difficulties for the construction company. In case payment is not made on time, the contractors have to slow down the progress or stop the work. Alternatively, the work can be carried out with the help of the companies' own resources. (10 companies)

- In milestone payments, the public entity can claim that the work is not progressed in accordance with the work schedule. Problem can also emerge in case the contractor fails to present the correct progress. Sometimes the public entity claims that the contractor did extra work which was not required in the contract. (1 company)

- The construction companies indicated that they sometimes can not get the final payment from public entity. (2 companies)

- The officials of top level management of the public entity can be replaced by new officials due to their appointment to other duties during the execution of the project. The new officials can investigate the previous payments made to the contractor and sometimes try to refund the previous payments. (1 company)

- In additional works, the payment is generally determined after accomplishment of the works by contractor. In such situation, the bargaining power of the contractor diminishes. (2 companies)

- In public sector, the work is carried out in accordance with annual payment plan. In case the financial resource is not sufficient, payments can not be made as planned to the contractor and efficient execution of the work is prevented. (2 companies) In case the payments are delayed the contractor can get extension of time. However, public entity does not pay compensation to contractor for this delay. (1 company)

- Owners use the payment issue as a tool of threat. (2 companies)

- The emergence of problem about payment depends on the attitude of the owner; resource of the owner; the relationship of the owner with the contractor. (10 companies)

- In the works with credits, there can be problems about the release of the credit. (2 companies)

- The formula described in the adjustment for changes clause in YIATS, does not respond properly to the changes in cost. There can be problems in definition of the base year. In case the base year was not clearly defined in the contract, there can be conflict in the calculation of the amount of money which has to be paid to the contractor. (3 companies) In case the clause about changes in cost is not precisely determined in the contract, there can be problems in determination of new contract price. (1 company)

Recommendation for financial problems:

- In public works it is important to put in the contract a statement such as: “in case the public entity fails to make the payment on time…” to establish principles protecting the contractor’s rights. (1 company)

- The currency of the subcontract should be the same currency as it is in the main contract. (1 company)

- The descriptions of unit price; the method of measurement and evaluation of the works should be precise in the contract. It is important to clearly determine the dates when the payments will be made. (2 companies)

- The companies should pay attention to the existence of the clause for adjustment for changes in cost in the contract. In that clause the base year should be defined precisely. (7 companies)

- In case there is need for variation in project or for additional work, it is important that the parties agree about the payment before accomplishing the work. (3 companies)

- The tender should not be accomplished before allocation of the fund by the public entity. (2 companies)

- Requesting evidence of payment arrangement from the owner can be useful. (1 company)

- Payments should be made in harmony with the real rate of progress of the work schedule. (1 company)

- In case the owner delays payment, the contractor should request extension of time. (1 company)

- Amount of bonds left for the final acceptance of the work should be kept at minimum level. (2 companies)

- In YIATS, it is important to simplify the release of the bonds. As the scope of the works become bigger, the contractors can face difficulties in providing bond for new tenders. It is needed that with the partial completion of a work, which consists of parts, the bond of the relevant part should be released. In

practice, the bond is not released until the accomplishment of the whole work due to the social security premiums *etc.* New system to permit this partial release of the bond should be established. (1 company)

b) Temporal issues:

Problems related with temporal issues:

- The work can sometimes not start on commencement date due to: delay in submission of site; expropriation problem of the site; lack of information which had to be provided to contractor by owner. In such situations, the contractor has the risk of being in default for not accomplishing the work on time and of paying liquidated damages. (7 companies)

- In YIATS, when the owner does not have enough financial resource, the contractor is given only extension of time. Insufficient financial resource of the owner affects the progress of the work negatively. This in turn can cause increase in the cost of the work. (5 companies)

- Prolonged approval durations, which affect the smooth progress of the work negatively, can cause the contractor being in default for not accomplishing the work on time. (4 companies)

- In YIATS, in case of prolonged suspension of the work caused by the owner, the contractor does not have the right to terminate the contract. (1 company)

Recommendations for temporal problems:

- The commencement date should be the date when all of the conditions are fulfilled, namely: the handing over of site to the contractor; the advance payment; the delivery of the necessary documents and information by the owner. (1 company)

- In YIATS, it is stated that the work is started with the handing over of site to the contractor by the owner. However, sometimes site is partially handed over and the commencement date is assumed to become effective on this date. It is important to state in the contract that the work starts with the delivery of the whole site. (3 companies)

- It is important to state in the contract the date when the owner is obliged to hand over the site to the contractor. (2 companies)

- The public entity should first expropriate the site and then announce the tender in order to prevent the emergence of the problem due to risk of failure in expropriation. In such a situation, the public entity can not hand over the site on time. This in turn can cause delay in the work. (1 company)

- The work programme should be revised periodically and be kept updated. Qualified planner is needed. (3 companies)

- In case it does not have financial burdens on owner, the problems about extension of time are generally solved in Turkey. (1 company)

- In general, the time limits in the approval procedures are not clearly defined. In case the contractor has bargaining power, these durations should be stated in contract. Precise determination of the approval procedures can help the contractor not being exposed to prolonged approval durations. (5 companies)

- The type of delays which entitle the contractor for extension of time should be stated in the contract. (1 company)

- In YIATS, the public entity gives only extension of time to the contractor when the public entity suspends the work. In prolonged suspension, the contractor should have the right to terminate the contract as well. (1 company)

- Some tests can be delayed due to the adverse climatic conditions which are beyond the control of the contractor. In such case, the procedure determining the continuation of the tests should be specified in the contract to prevent engineer to stop the execution of the work. (1 company)

- In order to protect their rights, the construction companies should be very precise in explaining the reasons of the delayed test to the owner. These reasons are binding for them as a commitment. (1 company)

c) "Non-compliance of the work with owner's requirements or specifications" issue:

Problems related with "non-compliance of the work with owner's requirements or specifications":

- The work can not comply with owner's requirements or with specifications because of: unclear specifications; failure in purchasing the proper material; defective workmanship; high progress rate of work; defects in material; conflict between project and specification; mistakes on contractor's part; changes emerged in producing detailed construction drawings which is based on preliminary project; misunderstanding or misinterpretation of the project by the staff in execution of the work; lack of care of the engineer; problems in communication between the contractor and the owner and between the contractor and subcontractors and lack of care in application of the work. (15 companies)

- The duration given for correction of defective work is generally not enough for carrying out necessary corrections properly. (1 company)

Recommendations for problems related with "non-compliance of the work with owner's requirements or specifications":

- As it is difficult to control and manage the subcontractors, the qualification of subcontractor is important. (3 companies)

- The contractors should explain the procedures in FIDIC to their staff working on site. (3 companies)

- In case the progress of the work is accelerated, in order to keep the quality in the works at the required level defined in the contract, working with two or three shifts should be preferred. (1 company)

- In case of defective work, it is important to determine: whether or not there is need for correction; the party in default; and needed duration for necessary corrections. (2 companies)

- Effective quality control and tests are important to prevent defects in work. (1 company)

- In each payment certificate, the contractor should make a statement for reservation to protect his rights related with that payment. (1 company)

d) Production drawings related issues:

Problems of production drawings related issues:

- There can be problems about production drawings due to: the imprecise specifications; failure in the communication; misinterpretation of drawings; conflict between design and specifications; insufficient information; cheap consultancy services which results in reduction in quality; non-approval of the design documents on time; unforeseeable climatic and geographic conditions and changes in design. (4 companies)

- Production drawings cause problems mostly in execution phase of the contract. (1 company) In case design is not precise, there can be conflict between the engineer and the contractor. In such a situation, the owner can tend to try to include additional works to the contracted work claiming that these works were within the scope of the work. (4 companies)

- The owners of the major construction works are mostly public entities. In public sector drawings supplied to the contractor are generally incomplete. (1 company)

- In public entity, the construction errors emerge due to design. This requires extension of time. The public entity starts the work as project X which becomes project Z due to the change in the investment plans. Design can be modified during the execution of construction due to the changes in the administration of the public entity. (1 company)

- The public entities do not give enough time for the preparation of design documents. This results in the award of the bid with incomplete drawings. (1 company)

- In public works, design documents supplied to the contractor as detailed construction drawings are not qualified as detailed construction drawings in reality. It is difficult for the contractor to bid with preliminary project due to the missing details. (1 company)

- There can be problems related to technical aspect of the work due to the lack of coordination among the different subcontractors who carry out mechanical, electrical works, *etc*. (1 company)

- Even though principally public entity make tender by supplying to the contractor subsurface analysis conducted before tender, this analysis is sometimes erroneous. In such situation, the public entity can claim that the contractor had to analyze the subsurface conditions before submitting its bid. Erroneous subsurface analysis supplied by the public entity causes the contractor to make changes in design affecting time and cost of the work. (1 company)

- In case there is a conflict between the report and the real subsurface conditions, the companies should inform the public entity accordingly. In that case, the contractor performs the subsurface analysis. However, the public

entity gives only extension of time for carrying out this analysis without compensating any cost of the contractor. (11 companies)

Recommendations for production drawings related problems:

- Coordination is the most important issue in production drawings. (1 company)

- The approval of the design documents by the owner phase by phase is important. (1 company)

- Local approval of design documents for the works abroad is important for the compliance to local norms. (6 companies)

- The approval duration by the engineer and of the entity should be kept short by specifying the relevant procedure in the contract. (2 companies)

- In approval of drawings the deadlines should be established. (1 company)

- In case the work to be carried out is not within the scope of the contracted work, it must be approved by the public entity before commencement of that work. (1 company)

- In case design will be supplied by public entity, it should be prepared by a consulting company. (1 company)

- The specification must be detailed and complete. (1 company)

- Works described by the engineer must be applied correctly. (1 company)

- Design must be complete in order to prevent defective work. Imprecise production drawings are not to the benefit of the owner as this impreciseness increases the risk of the contractor. Consequently, the contract price can increase. (8 companies)

- The public entity avoids taking responsibility of production drawings by inserting a statement in the contract such as: “the contractor is liable to correct all kind of technical errors within 30 days”; “The contractor is liable to make all the drawings which are missing”. (2 companies)

- The tender should be announced with detailed construction drawings. (4 companies)

- There can be problems due to the subsurface conditions. In case of defective subsurface analysis, the situation should be declared to the public entity by the contractor. (1 company)

- The public entity should supervise the work of the company to which subsurface analysis was outsourced. It should be liable towards the contractor for the reports prepared by this company. (1 company)

- In order to protect the contractor from the risk of defective subsurface data supplied by the owner, the contractor should put such a clause to the contract: “In case the error in the subsurface analysis report is not identified by a reasonable site survey conducted by the contractor’s experienced staff, the contractor shall not be responsible for the consequences of erroneous subsurface analysis submitted by the public entity”. (1 company)

- The contracting entities should give enough time for the preparation of design so that it is completed before tender. (3 companies)

- In case owner’s requirements do not comply with scientific and technical rules, the owner must be convinced by the contractor. (1 company)

- Compliance to norms is very important (fire, hygiene specifications, *etc.*). This work should be outsourced to experienced designer who knows the norms. There are companies who adapt the design documents prepared in Turkey to their countries norms. In case approval of local administration is required, the approval of the engineer is not sufficient. The conditions in the

contract must be coordinated with the conditions of the local administration. (1 company)

e) Risk distribution issue:

Problems related with risk distribution:

- The owner can include in the contract the statement of “time is of the essence” which increases the risk for the contractor to suffer the consequences of delay in work. (1 company)

- Even though the owner is in default causing delay in work, he can try to convey all the consequences of delay to the contractor by putting all responsibility on the contractor’s side in case the contractor is in default as well. (1 company)

- There is unbalanced risk distribution in YIATS. The clauses which make the owner liable and the clauses which protect the common benefits of both parties are missing in YIATS. The penalty clauses related with default by public entity are not included in this type of contract. (3 companies)

Recommendations for risk distribution problems:

- In case, the risk distribution is unfair in the contract, it should be rearranged to provide fair risk distribution. This will protect the contractor from being exposed to and bear the consequences of problems unilaterally. (13 companies)

- In public sector works, the contractors should consider the unbalanced risk factor before drawing up the contract and should take necessary precautions accordingly. For example, the contractors should increase the price for risky issues or work items in bidding phase. (3 companies)

- In case the owner requests to include in the contract that “time is of the essence”, the contractor should try to replace this statement by “time is one of the most important factors”. (1 company)

- Even though the owner is in default for delay he can try to convey all the consequences of this delay to the contractor in case the contractor is in default as well. For this reason, the contractor should pay attention to protect his rights in such situation by inserting a statement in the contract such as: “the contractor shall bear the consequences of delay, in case the contractor is solely liable for the default.” (1 company)

f) Fuzziness:

Problem of fuzziness:

- In case the officials, who signed the contract, are appointed to other positions during the execution of the contract, there is a risk for the contractor that the new officials, who replaced them, can interpret the fuzzy clauses in different manner. (1 company)

- Problems can emerge in the execution of the work because of the missing details in the definition of the responsibilities of the parties due to the conflict of interest. (4 companies)

- In case there is fuzziness in work scope, there is risk that the owner misuses this situation and tries to include extra works into the scope of work.

- During question and answer period of the bidding phase, the public entity sometimes does not give clear answers to the questions asked by the companies. (1 company)

- In YIATS there are sometimes conflicts between specification and projects. (6 companies)

Recommendations for fuzziness problems:

- The contract clauses should be very clear and comprehensible. (3 companies)

- The description of the work should be precise. (6 companies)

- Permits, licenses and approvals should be very precisely determined in the contract. (3 companies)

- There should be a statement in the contract indicating when the liability of the contractor ceases. (3 companies)

- Subcontract should precisely describe the scope of work to be executed by subcontractor by referring to the main contract. The subcontract and main contract should be in harmony. (7 companies)

- The contractors should analyze the possible problems in the execution of the work which can not be managed properly due to fuzziness in the contract. (1 company)

- There can be problem of interpretation in legal and technical issues. In order to prevent this problem, negotiation, site visits, meetings and question and answer period in bidding phase should be used effectively by the contractors. (4 companies)

- The risk of appearance of fuzzy clauses increases in case major modifications are made in standard contracts. The contractor and the owner should pay attention to avoid major modifications in the standard contracts. (1 company)

- The usage of correct words and exact terms are very important in public sector contracts. The contracts sometimes are not written in proper Turkish. (3 companies)

- The fuzzy issues in the contract enable the public entity to act freely by interpreting these issues for its benefit. For this reason, it is important for the contractors to avoid fuzzy issues. (1 company)

- The evaluation and measurement method of the executed work should be stated very clearly in the contract. (1 company)

- The conditions for the termination of the contract should be very precisely defined in order to reduce the number of issues left to the engineer's determination. (3 companies)

- The language of YIATS should be easier to understand. (2 companies)

- Force majeure should be precisely defined in the contract. In the definition of force majeure it is important to include all the situations which are not caused by an error of or default by the contractor. (6 company)

g) Supervising engineer / engineer

Problems about supervising engineer / engineer:

- There can be conflict between the contractor and engineer/supervising engineer about calculation on which the payment is based. Besides the supervising engineer can intent to include the additional works into the scope of the contracted work without any additional payment. These can be problems appearing due to the instruction of the supervising engineer. (1 company)

- The problems can emerge in daily approvals and instructions of the engineer. (1 company)

- The verbal and written instructions of the engineer can be different. (1 company)

- The supervising engineer is the representative of the public entity and protects public entity's interests. In this way, supervising engineers use the fuzzy clauses to the benefit of the public entity. (1 company)

- Determination duty of the engineer does not function properly as the engineer gets his payment from the owner. (5 companies)

- Supervising engineer sometimes acts beyond the limits of his authority. (1 company)

- The supervising engineer sometimes oversees the importance of financial and time issues. (1 company)

- The engineer has so much authority that he is sometimes reluctant in using this authority. (1 company)

- The contractor has to rely on the justice of the supervising engineer on site. (1 company)

Recommendations for problems about supervising engineer / engineer:

- The qualification of supervising engineer affects the solution of the problems emerging during the execution phase of the contract. In case, in YIATS, problem can not be solved with the help of engineer or if the engineer creates difficulties, the contractor should apply to upper level officer. (4 companies)

- The log book should be established for the supervising engineers. (1 company)

- The supervising engineer should be liable for the errors or losses caused by his decisions and instructions. (1 company)

- The good relationship between the supervising engineer and the contractor is important to provide good communication in the execution of the contract. (2 companies)

- As the engineer is the representative of the owner, determinations should not be done by the engineer; it should be done by a neutral expert. (4 companies)

- In case the engineer gives a wrong instruction, the contractor should pay attention to convince him through technical explanations. (1 contractor)

- Control and supervision of the work by the contractor is important to accomplish the work in accordance with the project. (2 companies)

- The good will of the engineer is important for the good cooperation of the parties in execution of the work. (2 companies)

h) Legal support issue:

Problems about legal support issues:

- Even though perfect contract is aimed to be drawn up, it is not possible to establish clauses that cover all arrangements protecting both parties' rights entirely. (1 company)

- Considering their future relationship with the public entity, the contractors try to avoid applying to court in order to protect their rights. (1 company)

Recommendations for legal support issues:

- High Technical Board in the Ministry of Public Works and Settlement should be considered as an effective body in solving disputes in a short time in the public sector. (1 company)

- In each step of the contract lawyer's support should be used. The legal consultancy; law and language of the country where the work is executed are important issues. The companies working abroad should get legal consultancy in the country where the project is executed. The work law of that country should be taken into account by the construction companies for the smooth execution of the work. For example, the flexibility of work hours of the country where the work is executed is important. (6 companies)

- Legal support should be used to prevent emergence of problems. In case problems emerge, they should be solved when they are small in scope. (1 company)

- Human resources are important to prevent problems which can be caused due to the mistakes caused by staff. The project managers should have contract knowledge. (1 company)

- The contractor should pay attention to collect correspondences and photographs. This will help the contractor to protect his rights. The documentation system is very important. (9 companies)

- It is necessary to accomplish the transfer of information correctly within the construction company and between the parties of the contract as well. (1 company)

- The collaboration of experienced engineer of the contractor and lawyer is important for both the bidding and the execution phases of the contract. This will help the contractor to protect his rights properly. (1 company)

i) Comparison of YIATS and FIDIC:

- In usage of FIDIC, there should not be a lot of modifications in the general clauses. In arranging special conditions, the local conditions should be taken into account. The owner should avoid making a lot of alterations for his benefit. The manner in which FIDIC is changed is important. (2 companies)

- FIDIC covers almost all necessary clauses. In case it is correctly drafted and executed, the contractor's risk of being exposed to the consequences of problems is reduced. (2 companies)

- Public entity prefers using YIATS instead of FIDIC to benefit in using his authority given by the contract. (2 companies)

- YIATS was prepared for minor works as the mostly accomplished construction type was building in the previous period. The contract must be rearranged for the works bigger in scope. FIDIC is suitable for works which differ from minor to major size. (1 company)

- In FIDIC, in case of prolonged suspension, the contractor has right to terminate the contract. However, the contractors do not use this right due to its costly consequences. On the other hand, in YIATS, the contractor is not entitled to terminate the contract. (1 company)

- FIDIC contract is suitable especially for the works to be executed in the well-defined conditions where project and bill of quantities are precise. The conditions requiring involvement of the engineer should be kept at minimum by avoiding creating fuzziness. However, in Turkey, the projects are not clear enough. The specifications do not explain the projects precisely. The bill of quantities may contain missing points. (3 companies, 1 expert)

- FIDIC relies on the principle of fairness. Public entities do not protect the rights of the companies whom they gave the work. On the other hand, the contractors are not aware of their rights precisely. They do not give importance to correspondence and its documentation. (1 company, 1 expert)

- In case the institutes providing funds for the project do not have any prerequisites for the type of the contract, the public entity prefers to use YIATS instead of FIDIC. On the other hand, some institutes require public entity to use FIDIC because of their by-law. (1 company)

j) Other Issues:

- Social structure of the country where the contract is executed is important for the successful execution of the construction. (1 company)

- The execution phase of the contract is important. The clauses are not referred unless there is a problem. (1 company)

- While giving notification to the owner, in case notification is not done with strong/objective reasons, the contractor can not protect his rights. He must rely on objective reasons. (1 company)

- Adaptation of the public entity and of the contractors to YIATS and to FIDIC is important for successful execution of the contract. (2 companies, 1 expert, 1 public entity)

- The contractors must be familiarized to international standard contracts. (1 company)

- It is important that the contractors have bid preparation department. The organization structure of the contractor should be contract orientated. (1 company)

- It is important to specify the qualification of the key staff who will work during the execution of the contract. However, it is disadvantageous for the contractor to indicate the name of the key staff in the contract due to financial burden. (1 company)

- The owner in Turkey can not prepare comprehensive technical specification due to time restrictions and limited resources before and during the bidding phase. (1 expert)

- Professional liability insurance does not exist in Turkey. In case of existence of such insurance, system can control itself as only successful companies can survive. (1 expert)

- Lack of importance given to engineering services can cause problems due to the poor engineering activities in the execution of the work. (1 company, 1 expert)

- The behaviors of the parties are important for the successful execution of the contract. This includes their approach to the contract, their intention and good will as well. If at least one of the parties does not act with good will, that party can try to find an issue to misuse against the other party even the contract was prepared well. (9 companies)

- It is not possible to make a contract which can prevent all possible problems and which can protect the parties against all kind of problems or mistakes. It is important to pay attention and try not to sign contracts which include unclear statements as the advantages of the parties are different. (1 company)

Following the interviews, a question, which integrated various causes of production drawings related problems which were expressed by companies during the interviews, was asked via e-mails to interviewed companies. This helped to understand common tendency in production drawings related problems. The data obtained from this question is given in Table 4.2. The numbers in Table 4.2 present the frequency of the answers given by the companies' staff. About how to read the table 4.2 the problem area of "discrepancy between production drawings and specification" can be given as an example. 22 presents the number of companies which considered this area as problem in YIATS whereas 5 of the companies considered that they did not encounter such problem in YIATS. 18 indicates the number of companies which considered this area as problem in FIDIC whereas 9 of the companies considered that they did not encounter such problem in FIDIC.

Table 4.1 Production drawings and specification related problems

Problem Areas	YIATS		FIDIC	
	Problem	Non problem	Problem	Non Problem
Wrong interpretation of the production drawings	18	9	18	9
Discrepancy between production drawing and specification	22	5	18	9
Lack in details of production drawings	22	5	20	7
Impreciseness of the design supplied by the owner	22	5	21	6
Non compliance with the norms	18	9	18	9
Delay in drawings supplied by the owner	19	8	18	9
Delay in drawings supplied by subcontractor	19	7	18	9
Delay in approval of drawings submitted to owner by contractor	21	7	17	10
Lack of understanding owner's requirements and expectations in production drawings supplied by the contractor	23	4	22	5
Changes in design	16	11	13	14
Lack of coordination between owner and contractor	19	8	19	8
Lack of coordination within contractor's organization	19	8	21	6
Lack in coordination of contractor with subcontractor	19	8	20	7
Scarcity in designers with the knowledge of norms	16	11	17	10
Language	9	18	12	15
Standards of drawings	14	13	16	11
Performance failure due to production drawings	19	8	20	7
Lack of detail in performance calculations	19	8	20	7

As it is seen form Table 4.1, language related problems tend to emerge more in FIDIC contracts compared to YIATS. As it was revealed from the answers of the staff to the Question 3.10 of the questionnaire, the companies mostly encounter FIDIC contracts in international works. This situation can cause language problem for companies due to the usage of foreign language. On the other hand, as in

YIATS, the language is Turkish, the Turkish construction companies tend not to encounter problems due to the language used. Similarly, issue related to standards of drawings is more problematic in FIDIC contracts compared to YIATS. Standards of drawings are more sophisticated for international works as works performed in a foreign country must comply with local norms.

The issues related to discrepancy between production drawing and specification, lack in details of production drawings and changes in design are observed to be more problematic in YIATS compared to FIDIC. As public entity must follow the time consuming procedure before the announcement, generally scarcity of time occurs and tender has to be made with incomplete design. On the other hand; public entity outsources design to companies offering lowest bid. This criterion has risk in selection of company creating poor quality in design. In case of emergence of problems related with these issues in execution of YIATS, the resolution of dispute can require time causing delay in works. This delay can emerge due to strict procedures applied in public entity and its need to get legal advice. This situation creates difficulties in making decision in time. On the other hand, the parties to contract can also refer to priority of documents in order to solve the problem within shortest time. However, referring to priority of documents can not be sufficient for solution of dispute due to the need for determination the reason of problems and decision on changes on documents required to be corrected.

4.4 Construction Contracts

The applied standard contracts which could be obtained from the companies were studied. Among the contracts obtained 13 were building contracts: 5 of them were FIDIC; 4 of them were YIATS and remaining 4 were other type of contracts. The following common points are observed:

- The FIDIC standard contract is applied by referring to the original standard contract and by indicating the changes in the clauses under Part II which is related to conditions of particular application.

- According to the contracts examined, it was also observed that FIDIC standard contract is commonly used in public works abroad.

- In the application of YIATS, it was observed that the content of each clause remains almost the same as the original standard contract. However, the modifications are done especially through omissions of some of the clauses in the standard contract to the benefit of the contracting entity. In this way, the balance in risk distribution is jeopardized against the benefit of the contractor.

- In FIDIC, fuzzy clauses appear in the contracts mostly by addition of new clauses or by modification of existing clauses. Especially the statements which can be interpreted differently by the parties cause fuzziness leading to disputes.

4.5 Courts of Cessation Decisions

In order to investigate the problem areas in construction contracts, the Courts of Cessation decisions and the arbitration awards of ICC were investigated. The investigated 92 decisions of Courts of Cessation, which were obtained from www.kazanci.com.tr website and from the book written by Dayınlarlı (2004), are grouped according to the problem areas as given in Figure 2.4. As it is seen from this figure, the main problem areas were: payment, temporal issues and non compliance of the work as specified in owner's requirements or in specifications.

These problem areas appeared in the decisions as single or multiple manners. There were also cases covering three main problems—financial, temporal issues and non compliance of the work with owner's requirements or specifications—at the same time. The decision of *Yargıtay Hukuk Genel Kurulu* (The General Board of the Civil Panels of the Supreme Court of Appeals YHGK) E. 2000/15-1134 can be given as an example for such cases. In this cessation decision, production drawings related problem was integrated with non-compliance of the work with the contract requirements. In this example, the production drawings documents of the building which were part of the contract, contained errors. The production drawings did not

included fire escape stairs when the contract was signed. In the execution phase of the contract, it was noticed that the stairs was missing. This caused modification in the project which in turn negatively affected the size of the offices. As smaller size offices were presented for the owners, the dispute emerged between the parties.

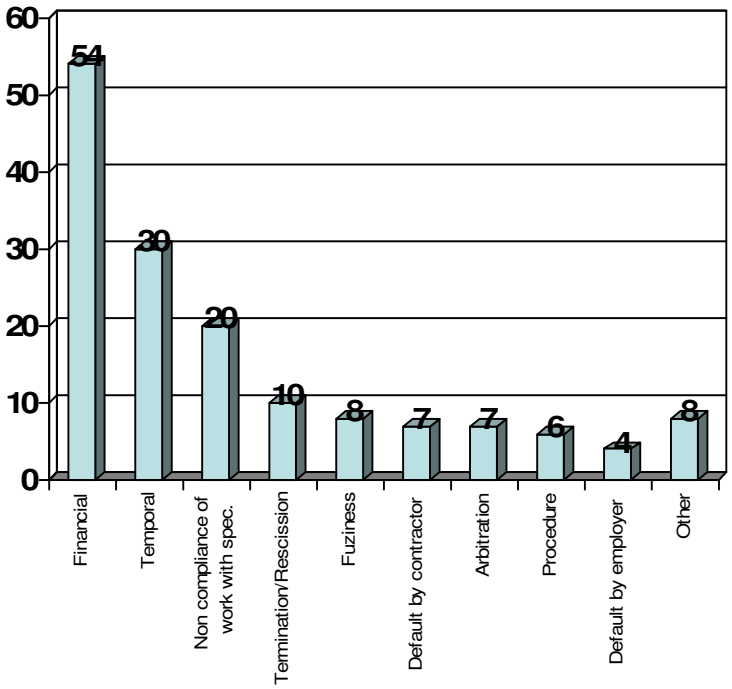


Figure 4.6 Problems dealt with in the Courts of Cessation decisions

CHAPTER 5

RESULTS AND DISCUSSION

This chapter presents results and discussion arrived at as a result of this study. These are presented under three headings covering tests of hypotheses, analyses of the obtained contracts and problem areas.

5.1 Tests of Hypotheses

The hypotheses explained in Chapter 3, were tested statistically by using the SPSS for Windows® program. Chi-square tests were performed on data as shown in Appendices F and G. Case-wise analyses were performed in order to check these statistical results and to observe the relations between the variables having p value more than 0.05 in chi-square tests. Additionally, risk analyses were conducted for the variables for which the chi-square tests resulted in p value less than 0.05 as presented in Appendix G. The null and alternative hypotheses are given below. N_{valid} indicates number of valid answers whereas $N_{missing}$ stands for missing answers.

Hypothesis 1: (related clauses in Question 2.5)

In case of any claim between parties, solutions are arrived at by referral to contract clauses. However, there can be situations where the contract does not include any clause supporting this claim. This presents the risk of turning the claim into a dispute. With the purpose of determining effects of absence of the clauses on the emergence of the main problem areas the first null hypothesis was formulated as under:

H_0: Existence or absence of relevant clauses in contracts makes no difference to the exposure of the contractors to the consequences of the problems about financial, temporal and compliance issues.

a) Statistical tests:

As it was explained above, the first hypothesis was formulated in order to analyze the effect of existence of clauses on exposure of contractors to the consequences of problems emerged during the execution phase of the contract. With this aim, Table 3.1 was prepared. This table is a condensed form of Table C.1 and includes only clauses which were classified, according to their content, as issues on three main problem area, *i.e.* financial, temporal and compliance. For each clause in Table 3.1, which consists of 95 clauses, chi-square test was made between absence/existence of each clause and emergence of problem in the issue covered by that clause. In total, 95 chi-square tests were performed for this analysis where in 93 chi-square tests the first null hypothesis was accepted and in 2 chi-square tests the first null hypothesis was rejected as p value was less than 0.05. According to the analysis of the first hypothesis, it was revealed that the risk of the contractor being exposed to the consequences of the problems about "determination" and "site data" increased with the existence of relevant clauses. The alternative hypotheses for these two cases are as follows:

With the availability of the "determination" clause, the risk of the contractor being exposed to the consequences of the problems about relevant issue increases. ($p= 0.013$, $N_{valid}= 30$, $N_{missing}= 1$)

With the availability of the "site data" clause, the risk of the contractor being exposed to the consequences of the problems about relevant issue increases. ($p= 0.014$, $N_{valid}= 30$, $N_{missing}= 1$)

b) Case-wise analysis of the answers:

A case-wise analysis of the answers given to Question 2.5 by the companies was carried out. Table C.1 presents the data obtained for this question. The clauses,

which were indicated by more than 30% of the companies as being problematic and which were indicated by more than 85% of the companies as clauses existing in the contract, were analyzed. Thus, critical clauses were understood to be: delayed drawings or instructions; right of access to the site; permits, licenses or approvals; determinations; sufficiency of the accepted contract amount; unforeseeable physical conditions; commencement, delays and suspension clauses; commencement of works; time for completion; extension of time for completion; delays caused by authorities; rate of progress; delay damages; suspension of work; consequences of suspension; extension of defects notification period; adjustments for changes in cost; delayed payment and discharge.

c) Discussion on first hypothesis:

Sub-clause 3.5 of FIDIC, which refers to determination, defines the engineer's authority to agree or to determine any matter by consulting with each party to reach agreement. If agreement is not achieved, the engineer makes a fair determination in accordance with the contract. In case this authority is given to the engineer in the contract and any matter requiring resolution arises, there can be situations that the engineer's determination is not satisfactory for any one or both parties. The unsatisfied party may raise a dispute against the engineer's determination. In case this clause is not included in the contract, the task of determination shifts to DAB, which is more impartial as its members who are appointed by the consent of both parties. On the other hand, according to articles 16 and 52 of YIGS, the contractor is obliged to obey the supervising engineer's instructions. In case of disagreement between contractor and supervising engineer, the issue is referred to a public entity instead of DAB in FIDIC. However, being owner, public entity may not be as neutral as DAB.

According to the Sub-Clause 4.10 referred as site data, the owner is liable for making available of the site data to the contractor for his information prior to the base date. The contractor is responsible for interpreting all the data delivered to him. He is deemed to have obtained all necessary information which may influence the tender and works. He is expected to have taken into account all financial and temporal issues. As it is seen, this sub clause is unilateral. It allocates all risks and

consequences of wrong site data to the contractor. This situation is in accordance with article 15 of YIGS. In case this clause is included in the contract and wrong data arises, the contractor does not have any right to dispute. As a result, no contractual problem appears. On the other hand, in case this clause is not included in the contract and wrong site data appears then the contractor has the right to raise dispute and contractual problem emerges. As a result, existence of these clauses in the contract increases the risk of the contractor.

According to the case-wise analysis, critical issues in contracts were observed. It is understood that most of these critical issues can be classified in at least one of the main problem areas. Among these critical issues, it is observed that determination and unforeseeable physical conditions support the results of above discussed statistical analysis.

Hypothesis 2: (Questions 2.7 and 2.8 versus related clauses in Question 2.5)

Cost-effective execution of construction works extensively depends on smooth and uninterrupted cash flow. However, payments and cash flow can be negatively affected due to various reasons such as engineer reports of non-compliance of the work with owner's requirements or specifications, fuzziness and unfair risk distribution in contract , missing points or errors in specification, default by one (either owner or contractor) or by both parties (owner and contractor) or delay in milestones.

In case of unfair risk distribution, the contractor, tending to concentrate in making effort to protect himself, can not pay adequate attention to the quality of work. This causes non-compliance problems. Fuzzy clauses, on the other hand, can cause claims requiring additional effort, time and money as rights and obligations of the parties are not clearly defined. Fuzziness can also cause the need for rework due to the mis-interpretation of contractual documents. Furthermore, missing points or errors in specification, fuzziness in description of the work, can result in non-compliance of the accomplished work with owner's expectations. Default by one or by both parties in fulfillment of the contractual obligations can prevent the performance of work timely and cost effectively. In such case, the contractor can try

to find loose points in specification to reduce cost and to save time; whereas owner can try to suspend payments to contractor. This, in turn, causes delay in work and increment in cost. These situations can cause emergence of main problem areas due to interruption of payments to contractor.

By considering the above assumptions, the second null hypothesis was formulated with the purpose of investigation the relationship between the main problem areas and problems encountered in FIDIC and YIATS. Data for problems (Question 2.7 and 2.8) in YIATS and in FIDIC contracts was tested according to the responses to question 2.5 (presence/absence of clause and emergence of related problem).

H_0: Problems about receiving payments, fuzzy clauses, default by both parties, default by owner, default by contractor and specifications related issues encountered in encountered in FIDIC or YIATS contracts are not related to the main problem areas *i.e.* financial, temporal and compliance issues.

a) Statistical tests:

The second hypothesis, as explained above, was formulated for the purpose to analyze the relationship between the problems encountered in FIDIC or in YIATS and the problems about financial, temporal and compliance issues. With this aim, chi-square tests were made between all clauses in Table 3.1 and problematic issues (*i.e.,* fuzziness, specifications, receiving payment, default by both parties, default by owner and default by contractor) in YIATS (question 2.7). The same tests were made for FIDIC contracts (question 2.8) as well. In total, 1330 chi-square tests were performed for this analysis where in 7 chi-square tests the null hypothesis was rejected. Risk analysis was conducted for these chi-square tests which resulted in p value less than 0.05. The alternative hypotheses for these seven cases are as follows:

In YIATS, in case there is problem related with rejection issue, the risk of emergence of a problem about receiving payment increases. ($p= 0.037$, $N_{valid}= 30$, $N_{missing}= 1$)

In YIATS, when there is a problem in taking over of the works and in case there is fuzziness in relevant clause or in case the relevant clause is absent, the risk of the contractor to experience adverse consequences of this situation increases. ($p= 0.039$, $N_{valid}= 30$, $N_{missing}= 1$)

In YIATS, in case there is a problem related with time for completion issue, the risk of emergence of a problem increases due to default by both parties. ($p= 0.047$, $N_{valid}= 30$, $N_{missing}= 1$)

In YIATS, in case there is a problem related with discharge issue, the risk of emergence of a problem due to the owner's default increases. ($p= 0.042$, $N_{valid}= 30$, $N_{missing}= 1$)

In FIDIC, in case there is problem of failure to pass tests on completion, the risk of emergence of problem in receiving payments increases. ($p= 0.013$, $N_{valid}= 30$, $N_{missing}= 1$)

In FIDIC, in case there is problem related with rejection issue, the risk of emergence of a problem about receiving payment increases. ($p= 0.033$, $N_{valid}= 30$, $N_{missing}= 1$)

In FIDIC, in case there is problem related with valuation at date of termination, the risk of emergence of problem increases due to the default by both parties. ($p= 0.033$, $N_{valid}= 30$, $N_{missing}= 1$)

Risk estimation calculations revealed following issues:

- When there is a problem in taking over of the works and the relevant clauses are either fuzzy or absent in YIATS, the risk of the contractor to experience adverse consequences of this situation increases 10.111 times.

- In YIATS, in case there is a problem related with time for completion issue, the risk of emergence of a problem increases 10.286 times due to the default by the parties.

- In YIATS, in case there is a problem related with discharge issue, the risk of emergence of a problem due to the owner's default increases 0.094 times.

- In FIDIC, in case there is problem of failure to pass tests on completion, the risk of emergence of problem in receiving payments increases 11.25 times.

- In FIDIC, in case there is problem related with valuation at date of termination, the risk of emergence of problem increases 8.889 times due to default by the parties.

b) Case-wise analysis of the answers:

Although $p>0.05$ was obtained statistically due to the small number of responses, the relationship between the following issues were observed through examination of the answers. According to 57.1% of the companies, which indicated that they have difficulties in receiving payment in YIATS, "Consequences of suspension"; "Payment for plant and materials in event of suspension" and "Design Error" were considered as problem whereas 64.3% of the companies, which encountered difficulties in receiving payment in YIATS, indicated owner's financial arrangements as problem. In FIDIC, on the other hand, 57.1% of the companies, which experienced difficulties in receiving payment, indicated that design error was problem.

c) Discussion on second hypothesis:

In YIATS, in case a problem emerges in taking over of the works and there is fuzziness in the contract, this situation creates disadvantage against the contractor who can be affected 10.111 times from the consequences of this taking over problem. In YIATS, the public entity is very powerful as contractual party. Contractor is obliged to remedy the defective work. He may also be requested to pay liquidated damages for delay. Additionally, overhead and opportunity costs emerged due to the extension of time of construction. These costs are borne by the contractor. In a risk balanced contract, there is possibility for both parties to protect their rights fairly. On the other hand, in YIATS, interpretations on fuzzy issues are generally done to the advantage of the public entity.

In YIATS and in FIDIC, in case there is problem related with rejection issue, the risk of emergence of a problem about receiving payment increases. Both, in FIDIC and in YIATS, in case, as a result of tests, inspection, *etc.*, the work or workmanship was found to be defective, the contractor is obliged to correct the defective work at his own costs. In such case the payment may be suspended until the deficiency is corrected. This means that in case a problem of rejection appears during the execution phase of the contract, the risk of the contractor to be exposed to problem about receiving payment increases. Especially, in YIATS, in case this defect is not corrected in proper duration, the payment schedule is affected and the planned interim or final payment shift to the following fiscal year budget. When there is not enough resource for this project in the budget, payments become problem for the parties. In FIDIC, during the execution of the work interim and final payments are effected upon the certificate issued by the engineer. In case any default in work that prevents acceptance thereof, the engineer does not prepare the relevant acceptance certificate and payments to contactor can not be made.

In YIATS, in case there is a problem related with time for completion issue, the risk of emergence of a problem increases 10.286 times due to the default by the parties. Time for completion defined in the contract can not be met due to the defaults by both parties. Problem related with time for completion can occur in case the owner was in default: in providing the site on time; in payment to the contractor due to the insufficiency of fiscal year budget or due to the change in the budget, *etc.* On the other hand, default by the contractor can appear as non accomplishment of the contracted work on time and as specified in the contract.

In FIDIC, in case there is problem related with valuation at date of termination, the risk of emergence of problem increases 8.889 times due to default by the parties. In FIDIC, engineer has important duties in case of termination of the contract as he has to calculate the value of the work performed by the contractor and the payment made by the owner. Valuation at date of termination clause is referred in the situation of termination of the contract by owner. Termination by owner occurs in situations where the contractor: fails to comply with owner's notice to correct; subcontracted whole work; gave bribe; was bankrupt; abandoned the works; did not show intention to proceed the work, *etc*. As it is seen from these situations,

termination by owner occurs due to the default by the contractor. However, there can also be situations where the owner tries to terminate the contract due to default by the contractor even if the owner contributed emergence of this default. In such cases, there can be claims about whether or not termination was done according to the principles of FIDIC contract. Additionally, as the valuation at date of termination is done by the engineer who is owner's representative, the contractor can be doubtful about the impartiality of the engineer and may not be satisfied with the value determined by the engineer.

In FIDIC, in case there is problem of failure to pass tests on completion, the risk of emergence of problem in receiving payments increases 11.25 times. As FIDIC defines failure of the tests and this failure is mainly caused by defective work, owner can suspend payment to the contractor until the work is corrected and pass the tests. Suspension of the payment and rework due to defective work means additional cost and time for the contractor.

In YIATS, in case there is a problem related with discharge issue, the risk of emergence of a problem due to the owner's default increases 0.094 times. In YIATS, the obligations of the owner are limited. Most of the obligations are on the contractor's side. As a result, discharge following the accomplishment of the work depends mainly on the contractor's performance. The owner observes contractor's fulfillment of all necessary requirements for discharge. In this phase, owner's default does not have significant effect on accomplishment of discharge.

According to the case wise analysis, the following issues were revealed. 57.1% of the companies which indicated that they have difficulties in receiving payment in YIATS, "Consequences of suspension"; "Payment for plant and materials in event of suspension"; "Design Error" issues as problem. The issues covered by these clauses can be classified in three main problem areas (financial, temporal and compliance) as well as production drawings issue. Suspension occurs primarily due to non-compliance of the work with the specifications or owner's requirements. The consequences of suspension are either cancellation or resumption. In both of the cases, the financial issues must be fairly settled. In case of failure of the parties in

solving this issue, dispute arises. The risk of dispute is higher in YIATS due to the unbalanced bargaining power of the parties.

As allocation of budget in public works depends on government decision, the financial arrangements for the work may be changed during the execution of the project. Insufficient financial resources of the public entity cause payment problem for the contractor.

Design errors can cause faulty work. Owner tends to avoid preparing payment certificates. This situation prevents payment to the contractor. This problem area is valid for both FIDIC and YIATS contracts.

Hypothesis 3: (Questions 2.3 versus relevant clauses in Question 2.5)

Contract type according to cost determination method influences payment to the contractor and cost of the construction to the owner. This represents the conflict of benefit of the parties. The owner aims to find the most cost efficient cost determination method. On the other hand, the choice of cost determination method by the owner depends on the level of the information available during the bidding phase. With the purpose to investigate the affects of cost determination method on emergence of the main problem areas the third hypothesis was formulated.

H_0: Problems related to financial, temporal and compliance issues are not affected by the choice of cost determination method of a contract.

a) Statistical tests:

In consideration of the above assumptions, the third hypothesis was formulated in order to analyze the effect of cost determination method on the emergence of problems about financial, temporal and compliance issues. With this purpose, chi-square tests were made between all of the 95 clauses in Table 3.1 and cost determination methods (*i.e.,* lump sum, cost + fee, unit price, cost + guaranteed maximum ceiling and cost + a percentage of cost fee). In total 475 chi-square tests

were performed for this analysis. In 5 chi-square tests the first null hypothesis was rejected. The alternative hypotheses for these five cases are as follows:

When cost plus guaranteed maximum ceiling method is less used, the risk of emergence of problems about the issue of technical standards and regulations diminishes. ($p=0.033$, $N_{valid}= 30$, $N_{missing}= 1$)

When cost plus guaranteed maximum ceiling method is less used the risk of emergence of problems about the issue of nominated subcontractors diminishes. ($p=0.00$, $N_{valid}= 30$, $N_{missing}= 1$)

When cost plus guaranteed maximum ceiling method is less used the risk of emergence of problems about the issue of evidence of payment diminishes. ($p=0.00$, $N_{valid}= 30$, $N_{missing}= 1$)

When cost plus guaranteed maximum ceiling method is less used the risk of emergence of problems about the issue of value engineering diminishes. ($p=0.047$, $N_{valid}= 30$, $N_{missing}= 1$)

When the lump sum method is used more, delay in drawings appears to be perceived as problem. ($p=0.036$, $N_{valid}= 30$, $N_{missing}= 1$)

b) Case-wise analysis of the answers:

When cost plus guaranteed maximum ceiling method is less used, the risk of emergence of problems about issues which were covered by following clauses diminishes: technical standards and regulations; nominated subcontractors; evidence of payments and value engineering.

The lump sum method was mostly used by 14 out of 30 companies. 57.1% of these companies which used mostly this method, perceived extension of time for completion and adjustment for changes in cost as problems. 64.8% of the companies which used lump sum method mostly, considered owner's financial arrangements as problem.

c) Discussion on third hypothesis:

When cost plus guaranteed maximum ceiling method is less used, the risk of emergence of problems about issues which were covered by following clauses diminishes: technical standards and regulations; nominated subcontractors; evidence of payments and value engineering. In cost plus guaranteed maximum ceiling method contractor tries to keep the cumulative cost of the items below certain price level. Technical standards and regulations determined by owner prevent the contractor from selecting more cost efficient type of standards. In this way, contractor's control and flexibility on the standards diminishes. Similarly, nominated subcontractors prevent the contractor's effort to reduce the cost. In case the cumulative cost increases beyond the contract price level, the amount of payment received by the contractor may not be enough for payment to all of the subcontractors. This in turn can cause the contractor to delay payments due to the subcontractors. Due to the delays in payments the contractor can not submit the evidence of payment to the engineer. This situation obstructs payment to the contractor. As for the value engineering issue, contractor spends efforts to find alternative methods to reduce the cumulative cost of the project by proposing to owner. However, the owner may not agree with this proposal in case the contractor is close to or over the cost limit due to no benefit to owner.

When the lump sum method is used more, delay in drawings appears to be perceived as problem. In lump sum cost determination method the contractor calculates all risks and contingencies in bidding phase. Delay in drawings can cause additional cost and time that can create problem for the contractor.

According to the case wise analysis, the issues of extension of time for completion, adjustment for changes in cost and owner's financial arrangements were perceived as problematic by most of the companies which used this method mostly. Extension of time for completion is given to the contractor due to the delay caused by owner or engineer. This additional duration, causing extra costs to the contractor as for general expenses, *etc.* increases the cost of contractor. In lump sum cost determination method the risk of fluctuation in costs is on the contractor side. In case of extreme increase in the cost, the contractor can suffer due the lump sum

method. If the owner fails to make the due payments on time to the contractor, the contractor can suffer due to the financial cost of this delayed payment.

5.2 Discussion on contracts obtained

Analysis of the applied contracts obtained from the companies revealed that standard contracts are modified by omitting some clauses or some words in clauses; or by adding new clauses. The clauses sometimes loose their preciseness due to these alterations, and become fuzzy. The changes can also affect the risk distribution to the advantage of the party who prepares the contract (generally to the advantage of owner). It is important not to make alterations against the essence of the contract.

- Examples of fuzzy clauses encountered in FIDIC contracts are:

  > "Where there is obvious discordance among the clauses of the same or other documents comprising the contract, the clause indicating closest application to the intent of the Contract shall govern". *(The intention of the contract is fuzzy)*

  > "The Owner or the Owner's representative shall give a notice to the contractor of any defects, omissions, shrinkages or other faults before the end of the defect liability period, provided that with respect to non-remedied defects, omissions, shrinkages, or other faults, the defects liability period shall be extended for as long as such defect, omission, shrinkage or other fault remains non-remedied." *(It is fuzzy for the warranty scope whether defects liability period is expended only for defective equipment or for the whole building)*

- During the modifications of the contracts, sometimes, some of the clauses are omitted and the paragraph numbers of these omitted clauses are given to following clauses. This situation can cause fuzziness, in case the reference paragraph numbers in the new clauses are not carefully corrected. The following clause is an example for this kind of mistake where the original FIDIC 42.1 Sub-clause was deleted:

  > "Possession of Site and Access thereto
  > 42.1 If the Contractor suffers delay and/or incurs costs from failure on the part of the Owner to give possession in accordance with the terms of Sub-Clause 42.1, the Engineer shall, after due consultation with the Owner and the Contractor, determine:
  > (a) any extension of time to which the Contractor is entitled under Clause 44, and

(b) The amount of such costs, which shall be added to the Contract Price, and shall notify the Contractor accordingly, with a copy to the Owner." *(Sub-Clause 42.1 refers to Sub-Clause 42.1)*

- During the modification or preparation of the contract clauses, typing errors can cause fuzziness as in the example given below:

"Assignment of benefit of agreement
63.4 Unless prohibited by law, the Contractor shall, if so instructed by time Engineer within 14 days of such entry and termination referred to in Sub-Clause 63.1, assign to the Owner the benefit refit of a; any agreement eon for the me supply of any goods or materials rater or services and/or for the execution of any work for time purposes of the contract which mid m the contractor actor may have entered into"

- In FIDIC contracts, some clauses are stated to be deleted in Part II Conditions of Particular Application. For example: "Sub-Clause X is deleted." In case an issue arises related with deleted clauses, the risk of conflict and dispute emerges. As the example given below, omission of the "testing and inspection dates" clause could cause coordination problem during these activities between contractor and the owner. This coordination problem could lead to disagreement on qualification of the test and inspection results.

"Dates of Inspection and Testing
37.3
Delete Sub-Clause 37.3 in its entirety."

- As an example of fuzziness causing payment problem is given below. In this situation, fuzziness was caused because of the omission of one part of the original YIATS clause which defines the due date for payment. During the modification or preparing the contract clauses, typing errors can cause fuzziness as in the example clause given below:

"14.2 Advance payment shall be made in one installment." *(due date for the installment was not defined)*

- An example of fuzziness, which was observed in YIATS, was caused by imprecise wording.

"Material which does not have suitable properties
7. Material which does not have technical qualities and certain conditions shall not be kept at the site…" *(this expression should have been like "material which does not comply with the technical requirements defined in the specification.")*

- The creation of unbalanced risk distribution in Part II Conditions of Particular Application increases the risk of problem. As an example, the following statement is observed:

"Work Schedule
5…The public entity is authorized to make the necessary corrections and modifications on the work schedule. The contractor can not make objection against corrections or modifications done by the public entity…"

The extreme changes in the work schedule could have jeopardized efficient performance of the work by the contractor due to their affect on contractor's cash flow and resource planning.

5.3 Discussion on Problem Areas

Within the scope of this study, three main problem areas were determined in the execution of the contracts. These are namely: payment, time, and non compliance of the work with owner's requirements or specification. These problem areas were identified through questionnaire, Courts of Cessation decisions, and interviews with the staff of the companies.

The questionnaire carried out within the scope of this work revealed the main problem areas of FIDIC as fuzziness, payment and default by the parties (answers to question 2.8) whereas the main problem areas of YIATS as payment, fuzziness and specifications (answers to question 2.7). The investigation of Courts of Cessation decisions showed that the main problem areas are payment, time, and non compliance of work with owner's requirements and specifications. Similarly, analysis of articles revealed that rework; time; cost and risk distribution are problematic areas. Similar observations were obtained through interviews with the staff of the companies. Among these identified problem areas fuzziness and risk distribution issues differ from payment, time and non-compliance of work with owner's requirements or specifications because fuzziness and risk distribution issues can be observed in any clause in a contract. Both of them cause the main

problems which are financial issues; time issues and non compliance of work with owner's requirements or specifications.

The causes of financial issues; time issues and non compliance of work with owner's requirements or specifications were obtained from the interviews as given under the heading of 4.1. Data Summary.

a) Financial problems: These problems mainly arise in the execution phase of the contract. When the causes of the financial problem were classified, it was observed that resource allocation; issues related with the acceptance of the work and production drawings played important role. In case, for example, in the contract, the payment is determined to be made according to the milestones, error or delay in drawings and delay in their approvals affect the cash flow due to delay in the completion of the work which causes the contractor to experience problem in receiving payment.

b) Temporal problems: When the factors which affect the duration of the work were analyzed, it was seen that submission of site; production drawings (including: delay in submission of the production drawings to the contractor; production drawings errors causing rework; delay in approval of the production drawings); unforeseeable physical conditions were playing important role in emergence of time related problems. Duration of the work is adversely affected by the insufficient budget allocation of owner as well. This situation prevents efficient execution of the work. Delay in submission of site causes delay in starting the works. On the other hand, the date of the partial submission of site is sometimes assumed to be the commencement date for the works. In such case, any delay in submission of the whole site can prevent the accomplishment of the contracted work on time. This situation can cause the contractor to be exposed to liquidated damages.

c) "Non-compliance" problems: Non-compliance of the work appears mainly due to poor workmanship; defective material and erroneous production drawings information. Unqualified workers or erroneous instructions given to the workers result in poor workmanship. This may be caused due to the wrong interpretation of the project which does not include necessary details.

Any conflict between production drawings document and specification can cause defective production in the site as the staff may not notice the conflict before the execution of the work. Additionally, such conflicts in the documents can also cause failure in purchasing material which must comply with the production drawings requirements.

The insufficient communication and coordination among the contractor, owner and engineer obstacle proper execution of the work according to the owner's requirements or specifications. Insufficient communication between contractor and subcontractor causes overlapping of and conflict in the electrical, mechanical, structural and architectural works. In such situation, the need for: demolishing of the completed work; carrying out necessary corrections; and rework emerges. All of these problems result in additional cost and time, and in decrease in quality.

The unqualified subcontractors prevent proper accomplishment of the work as described in the contract. Subcontractors must have sufficient qualification, training, and experience for carrying out the work. The production drawings documents must be clear and precise to prevent misunderstanding of the work by subcontractor.

Problems Related to Production Drawings: All of the above mentioned investigations revealed that production drawings is an important issue. By classifying problems of production drawings related issues, it was seen that insufficient production drawings and specification were especially encountered in public works. The public entity works with limited budget and tries to obtain the services with the lowest price. This in turn results in announcing the bid and in awarding the contract with insufficient production drawings causing the problems related with non-compliance of the work with owner's requirements or specification; financial and temporal issues.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

Construction contracts are one of the most important tools in the construction industry. Turkish construction companies undertake construction works in domestic and international markets. During execution of these projects, they encounter problems related to contractual issues. In this study, from the contractor's point of view, construction contracts; their applications; problem areas in the execution phase of the contract and recommendations of the contractors to overcome them were focused upon. These conclusions and recommendations are presented in the following pages.

6.1. Conclusions

In this study, Courts of Cession decisions, ICC arbitration awards and face-to-face interviews with staff of construction companies revealed that the main problem areas in the execution of the contracts are: financial issues; temporal issues and non-compliance of the work with specifications or owner's requirements. Identification of the problems and their roots is important for the construction companies in coping with these difficulties and in taking necessary precautions As explained in detail in Chapters 4 and 5, causes of these problem areas were identified to be:

- financial issues as: insufficient resource allocation for the work; issues related with the acceptance of the work and production drawings,
- temporal issues as: delay in submission of site; production drawings (including: delay in submission of the production drawings to the contractor;

design errors causing rework; delay in approval of the production drawings) and unforeseeable physical conditions,

- non-compliance of the work with the owner's requirements or specification as: poor workmanship; defective material and erroneous production drawings information.

The relationship between these problem areas and their causes are presented in Table 6.1. As it is seen from the matrix below, the causes behind each problem area, *i.e.* financial, temporal and compliance have effects on emergence of other problem areas. In this respect, this matrix reveals the reciprocal influence and relationship of these main problem areas as they have direct or indirect common causes. For example, problems that constitute problem area of non compliance of work with the owner's requirements or specifications have significant effects on both financial and temporal problem areas. It is also observed that financial problem area is affected by problems in temporal and compliance problem areas besides its own causes. On the other hand; non-compliance problem area is another issue that should be very carefully observed due to its effects on emergence of the other two main problem areas (see Table 6.1).

Through the analysis of the causes behind these problem areas, the importance of preciseness of production drawings was observed due to its direct effect on financial and non-compliance problem area. As it is seen from the frequencies of the answers in Table 4.1, emergence of problems about production drawing related issues slightly differs between FIDIC and YIATS contracts. In FIDIC contract, language and standards of drawings are seen more problematic issues compared to YIATS. On the other hand, in YIATS, the issues related to discrepancy between production drawings and specification; lack in details of production drawings; delay in approval of drawings submitted to owner by contractor; changes in design are more problematic issues compared to FIDIC contract.

Analysis of the contracts obtained from the companies revealed the importance of avoiding alterations against the essence of the contract. In practice, modifications are carried out through omission of some clauses or few words in these clauses or through addition of new clauses. These alterations can cause fuzziness or

unbalanced risk distribution between the parties; this in turn can cause difficulties and misinterpretations during the execution of the contract. In this respect, while making alterations, balance of risks and fuzziness in the modified clauses should be kept under control. Problems due to unbalanced risk distribution and fuzziness have consequences mainly in three main problem areas, *i.e.* financial, temporal and compliance.

Case wise analysis of the responses to the questionnaire revealed the critical clauses which have to be carefully drafted. These clauses are:

- Delayed drawings or instructions;
- right of access to the site;
- permits,
- licenses or approvals;
- determinations;
- sufficiency of the accepted contract amount;
- unforeseeable physical conditions;
- commencement, delays and suspension clauses in general;
- commencement of works;
- time for completion;
- extension of time for completion;
- delays caused by authorities;
- rate of progress;
- delay damages;
- suspension of work;
- consequences of suspension;
- extension of defects notification period;
- adjustments for changes in cost;
- delayed payment and discharge.

Table 6.1 Relationship between main problem areas and their causes

Problem areas in execution of contracts	REASONS FOR THE PROBLEMS		
	Financial	**Temporal**	**Non compliance of work**
Financial – **delay in payment** – **Increase in costs and overhead**	Delay in payment due to: insufficient budget of the administration; improper allocation of the credit; curtailed budget; change in cash flow Increase due to changes in material costs; exchange rate	Delay in payment due to: deceleration or suspension of the work Increase in cost due to: delay penalties Increase in overhead and opportunity costs due to: delay in expropriation of site; suspension of work; delay in approval procedures; prolonged suspension; delay in tests due to adverse climatic conditions	Delay in payment due to suspension of payments due to non compliance of work Increase in costs due to rework and incorrect site data.
Temporal – **work delays**	Delay in works due to: delay in payments; absence of payments	Delay of work due to: late delivery of site; delay in expropriation of site; prolonged approval procedures; suspension of work; prolonged suspension; delay due to adverse climatic conditions	Suspension of work due to non compliance of work, need for extra time for rework and for retesting
Non compliance of work – **rejection of work** – **defective work** – **failure to pass tests**	Non compliance of work due to: unethical savings in costs by using substandard material	Non compliance of work due to time scarcity (high progress rate leading to substandard work)	Defective work due to: purchasing improper material; defective workmanship; defects in material; misunderstanding or misinterpretation of construction drawings by the staff; lack of care of the engineer; problems in information flow; lack of care in application of the work

6.2 Recommendations

Statistical analysis of the questionnaire, telephone and face-to-face interviews, contracts studied provided recommendations on the main problem areas and their causes. These recommendations are explained below:

1) The contractors should pay attention to “determination” and “site data” clauses in the contract. The importance of the balanced risk distribution was emphasized during the telephonic and face-to-face interviews. This was also revealed by statistical analysis. “Determination” and “site data” clauses in standard forms generally contain statements causing unbalanced risk distribution against contractor’s benefit. With this respect, “determination” clause should be carefully prepared. In case this clause is not included in the contract, determination duty shifts to DAB which is more impartial as it DAB member/s who is/are appointed by the consent of both parties. On the other hand, “site data” sub-clause allocates all risks and consequences of wrong site data to the contractor. In case this clause is included in the contract and wrong data arises, the contractor does not have any right to dispute. As a result, no contractual problem appears. On the other hand, in case this clause is not included in the contract and wrong site data appears then the contractor has the right to raise dispute and contractual problem emerges.

2) The contractors should avoid fuzzy issues in contracts. Fuzziness problem was mentioned during telephonic and face-to-face interviews. This problem was also observed through the analysis of Courts of Cessation decisions and contracts obtained from the companies. In accordance with these investigations, statistical analyses also pointed out the importance of clarifying fuzzy issues before drawing up of the contract. According to this, when there is a problem in taking over of the works and fuzziness in clause or absence of relevant clause in YIATS, the risk of the contractor to experience adverse consequences of this situation increases 10.111 times.

3) The contractors should pay attention and spent effort that the parties of contract are not in default as it was in Courts of Cessation decisions and statistical

analyses. Especially, time for completion issue in YIATS and valuation at date of termination in FIDIC are affected by default by both parties.

4) As it was emphasized during face-to-face interviews and as it was observed in Courts of Cessation decisions, receiving payment is one of the major problems within financial problem area. Statistical analyses contributed to this study with the following points:

   a) In order to reduce the risk of problem in receiving payment, it is important for the contractors to pay special attention to the following clauses: consequences of suspension; payment for plant and materials in event of suspension; design error and owner's financial arrangements.

   b) In FIDIC contract, in case there is problem of failure to pass tests on completion, the risk of emergence of problem in receiving payments increases 11.25 times.

5) The contractors should pay attention in selecting the cost determination method as it affects the risk of emergence of problem. By taking into consideration the relationship between cost determination methods and main problem areas, the statistical analyses was expanded to cover these issues. According to the findings of these analyses, following points can be emphasized:

   a) In order to reduce the risk of emergence of problems about the clauses of: design, technical standards and regulations; nominated subcontractors; evidence of payments and value engineering, the maximum cost-plus fee/cost plus guaranteed maximum ceiling should not be preferred.

   b) When the lump sum method is used, the contractor should pay special attention to prevent delay in drawings..

6) It is strongly recommended that contractor should establish proper management and control organization on site to reduce the risk of emergence of non compliance problems such as: failure in purchasing the proper material;

defective workmanship; high progress rate of work; defects in material; error caused by the contractor; misunderstanding or misinterpretation of construction drawings by the staff in execution of the work; problems in communication; lack of care in application of the work, *etc.*; to notice and prevent any non-conformities in time. Effective control of the work and tests should be provided. As it is difficult to supervise the subcontractors and the contractor is responsible for the quality of the work, the qualification of subcontractor should be paid attention.

7) The contractor should also pay special attention to reduce the risk of emergence of problems about financial issues. The issues related to delay of payments and suspension of the payments can be caused due to default by both parties. The contractor should be careful with non compliance problem area that causes emergence of the financial problems. On the other hand, contractor should spend his efforts to arrange contract clauses properly in contract drafting phase for the problems such as changes in costs, insufficient budget of the administration, improper allocation of the credit, change in the budget due to the shortages or due to the changes in government, change in cash flow, *etc.* which are not under the his control during execution of work. Especially, in public works, contractors should pay attention to issues about sanctions in case the public entity fails to make the payment on time; adjustment for changes in cost, advance payment and allocation of funds in the contract.

8) The contractors are also recommended to pay attention to the risk of emergence of temporal problems such as delay in submission of site; delay in submission of the production drawings to the contractor; design errors causing rework; delay in approval of drawings. Especially, the issues such as date of submission of site and drawings, duration for approvals should be clearly determined in the contract.

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APPENDIX A1

QUESTIONNAIRE (ENGLISH)

QUESTIONNAIRE ABOUT "CONSTRUCTION CONTRACTS"

SECTION I

I General Information about the Construction Companies

1.1. The name and address of your company:

……
……..

1.2. How long has your company been in operation since its establishment date?

[ ] 1–5 years [ ] 6–10 years [ ] 11–15 years
[ ] 16–20 years [ ] more than 21 years

1.3. Type of your company:
(You may select more than one option)

[ ] Joint stock company [ ] Limited company [ ] Limited partnership
[ ] Holding [ ] Independent company [ ] Other…….

1.4. What kind of construction does your company do?
(You may select more than one option)

[ ] Infrastructure [ ] Residents [ ] Factories
[ ] Educational buildings [ ] Hospitals [ ] Other……

1.5. Based on its experience, which of the following sectors does your company prefer to operate in? (Please give a value between 1 to 4 to each of the below options where 1 shows the least preferred and 4 shows the most preferred option)

[ ] Turkish Public Sector [ ] Turkish Private Sector
[ ] Public Sector Abroad [ ] Private Sector Abroad

1.6. Does "contract management" exist as a separate department in your company?

[ ] Yes [ ] No

1.7. Which of the following departments exist in the organization chart of your company?

[ ] Business Development [ ] Fiscal and Administrative Dept. Coordination
[ ] Renovation Department [ ] Mechanical-Electrical Coordination
[ ] Technical Group Management [ ] Construction Management
[ ] Department of Project Management [ ] Department of Production drawings
[ ] Department of Quality Control [ ] Maintenance Repair and Substructure Management
[ ] Department of Training [ ] Department of Strategic Planning
[ ] Other (please specify)

1.8. On which of the following topics do experts exist in your company?

[ ] Experts on arbitration [ ] Experts on contracts
[ ] Staff specialized on FIDIC [ ] Staff specialized on Public Procurement Contract
[ ] Legal counsel [ ] Experts on project management

1.9. For which of the following topics does your company obtain consultancy from outside the company?

[ ] Subcontractors [ ] Arbitration
[ ] Design [ ] Legal issues
[ ] Other (please specify)

1.10. Which project management tools are used in your company?

[ ] Primavera [ ] Microsoft Project
[ ] Other(please specify)

SECTION II

Contracts

2.1. Which of the following contract management issues exist in your company?

[ ] Official internal procedures covering the feasibility of works
[ ] Official internal procedures covering the requests of the owner
[ ] Official internal procedures covering the evaluation of the terms and conditions covered by the contract
[ ] Official internal procedure of the company with regard to the negotiation phase of the contract
[ ] Official internal procedure of the company with regard to the execution of the contract

2.2. Which of the following contract types are used by your company?

[ ] Standard contract prepared by your company
[ ] Standard contract taken from the owner and modified during the negotiation phase
[ ] There is no special contract available. Only a memorandum of understanding is provided.
[ ] Public procurement tendering procedure and public standard contracts are used.
[ ] FIDIC
[ ] Other……...

2.3. With which of the following contract cost determination method does your company mostly work?

(Please give a value from 1 to 5 to each of the following items where 1 means the least used and 5 means the most used option)

[ ] Lump Sum	[ ] Cost + Fee
[ ] Unit Price	[ ] Cost + guaranteed maximum price ceiling
[ ] Cost + a percentage of cost fee	[ ] Other (please specify)……

2.4. Which is the payment type that you mostly preferred and mostly used?

	The most preferred	The most used
Monthly Payments	[ ]	[ ]
Milestone Payments	[ ]	[ ]
Planned Payments made on dates determined in the contracts	[ ]	[ ]

2.5. Which of the following contract clauses are included in the contracts of your company? In which of them do problems emerge in application? What are your suggestions about these issues? How do you overcome the problems?

(You may indicate more than one option as to cover all the clauses included in your contract)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
General Provisions					
Descriptions (description of words and expressions used in the contract)					
Interpretation (indication of singular words to plurals as well, *etc.*)					
Communications (method of communication for the issues such as approval, certification, notice)					
Law and Language (law and the language for the contract)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Priority of Documents (determination of priority of contract documents to provide convenience for interpretation)					
Contract agreement (determination of basic terms for the contract following the letter of acceptance)					
Assignment					
Obligation of care and confidentiality (determination of the issues such as number of copies of documents and rules for keeping the confidential documents)					
Delayed drawings or instructions (procedures for delayed documents)					
Owner's usage of contractor' s documents (contractor's retention copyright and other intellectual property rights in documents supplied by him or on behalf of him) (contractor's retainage copyright and other intellectual property rights in documents supplied by him or on behalf of him)					
Contractor's usage of owner' s documents (contractor's obligation for non transferring owner's documents to third parties except for the purpose of the contract)					
Confidential details (contractor's obligation for not disclosing confidential information to public)					
Compliance with laws (contractor's obligation for the completed work to be in accordance with law)					
Joint and several liability (liability of the partners in joint venture or consortium for performance of the work in case contractor is a joint venture or a consortium)					
The Owner					
Right of access to the site (owner's obligation for providing building lot to contractor)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Permits, licenses or approvals (owner's support to contractor in obtaining permits, licenses or approvals in case contractor requires this support)					
Owner' s personnel (cooperation of owner's personnel with contractor and their obligation for taking the necessary security precautions)					
Owner's financial arrangements (owner's fulfillment of necessary arrangements for payment)					
Owner's claims (owner's right for receiving payment from contractor)					
The Engineer					
Engineer's duties and authority (owner's appointment and authorization of the engineer and engineer's right to use this authority)					
Delegation by the engineer (engineer's delegation of his authority to his assistants)					
Instructions of the engineer (engineer's instructions to contractor for the progress of the work in accordance with contract)					
Replacement of the engineer (procedure of replacing engineer upon the intention of owner to do so)					
Determinations (engineer's hearing to convince the parties and making a fair decision)					
The Contractor					
Contractor's general obligations					
Performance Security (requirement for the contractor to provide performance guarantee)					
Contractor's representative (appointment of contractor's representative)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Subcontractors (contractor's responsibility for subcontracted works and unauthorization of contractor for subcontracting the whole work)					
Assignment of benefit of subcontract (transferring the benefit of subcontract to owner after the final delivery)					
Co-operation (cooperation of the contractor with personnel, *etc.*, of the owner)					
Setting out (contractor's obligation for performing the works as defined in the contract or in accordance with the request of the engineer)					
Safety procedures (contractor's obligation to enforce safety rules)					
Quality assurance (contractor's obligation for providing quality assurance)					
Site data (owner's obligation for providing contractor with subsurface data, *etc.* related to the site)					
Sufficiency of the accepted contract amount (contractor's commitment for having satisfied himself as to the correctness and sufficiency of the contract amount)					
Unforeseeable physical conditions (contractor's obligation to inform the engineer about unforeseeable physical conditions)					
Rights of way and facilities (costs that the contractor must bear)					
Avoidance of interference (contractor's avoidance of interference unnecessarily with disturbing public)					
Access route (contractor's obligation for taking precautions in order not to damage the roads and bridges to the site)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Transport of goods (contractor's responsibility for packaging, transportation and storing of materials required for the work)					
Contractor's equipment (contractor's responsibility for not removing any equipment from the site without the approval of engineer)					
Protection of the environment (contractor's obligation for protection the environment during the execution of work)					
Electricity, water and gas (contractor's responsibility to pay for the electricity, water *etc.* services that he benefits)					
Owner's equipment and free-issue material (owner's allocation his own equipments to usage of contractor in accordance with arrangement in the contract)					
Progress reports (contractor's obligation for submission of monthly progress reports)					
Security of the site (contractor's responsibility for keeping unauthorized people outside the site)					
Contractors operations on site (contractor's authority for carrying out construction activities within or out side of the site wherever he deems necessary and wherever is approved by engineer)					
Fossils (contractor's responsibility for protecting fossils found at site)					
Nominated subcontractors					
Definition of "nominated subcontractor"					
Objection to nomination (contractor's obligation to work only with the subcontractors approved by owner)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Payments to nominated subcontractors (contractor's obligation to make due payments to the subcontractors)					
Evidence of payments (engineer's right to request from contractor to provide the evidence of previous payments to the subcontractors)					
Staff and labor					
Engagement of staff and labor (contractor's responsibility to provide food, accommodation, transportation and to pay their salaries for all his employees and workers)					
Rates of wages and conditions of labor (contractor's obligation to pay salaries to his employees at the rate which is not below average level of the sector)					
Persons in the service of owner (contractor's responsibility and promise not to hire any of the owner's personnel for his own work)					
Labor laws (contractor's obligation to obey the labor law and to respect employees' legal rights)					
Working hours (observing of official working hours)					
Facilities for staff and labor (contractor's obligation to provide the necessary accommodation place for his employees)					
Health and safety (contractor's obligation to take all required precautions for health and safety for his employees)					
Contractor's superintendence (contractor's obligation to perform necessary supervision and quality control)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Contractor's personnel (requirement for contractor's employees having the necessary capacity, ability and experience for the work that they perform)					
Records of contractor's personnel and equipment (contractor's report to engineer about his employees and equipments)					
Disorderly conduct (contractor's obligation to take necessary precautions to prevent his employees from acting against law and working discipline)					
Plant, materials and workmanship					
Manner of execution (contractor's obligation to perform the works with good workmanship and with required equipment as determined in the contract)					
Samples (presentation of necessary material and samples to the approval of engineer before the commencement of the work by contractor)					
Inspection (supervision activities of owner's representatives at site, for material, production and construction within reasonable hours and support of contractor to owner's representatives for these activities)					
Testing (contractor's obligation to provide tools and documents for tests)					
Rejection (rejection of the material *etc.* in case any non-conformity is obtained at the tests)					
Remedial work (contractor's obligation to perform corrective works as required by engineer within reasonable duration)					
Ownership of plant and materials (appropriateness of plant and material to the law of the country)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Royalties (royalty fees that contractor must pay)					
Commencement, delays and suspension					
Commencement of works (the date when the work is started)					
Time for completion (contractor's obligation to complete all the works or part of the works within the defined completion time)					
Programme (contractor's obligation to deliver work programme to engineer)					
Extension of time for completion (contractor's request for extension of time to complete the work)					
Delays caused by authorities (contactor's pursuing of the necessary procedures in the offices such as municipality *etc.*)					
Rate of progress (engineer's request from contractor to revise the work programme in case the work progresses slower than it was planned)					
Delay damages (contractor's payment of liquidated damages for delay to owner, in case of delay in work)					
Suspension of work (engineer's request from contractor to suspend the work at any time)					
Consequences of suspension (delay of the contractor due to the engineer's request for suspension)					
Payment for plant and materials in event of suspension (compensation the cost of the plant and materials to contractor due to engineer's request for suspension)					
Prolonged suspension (contractor's right to request permission from engineer to resume the work)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Resumption of work (determination of the materials *etc.* affected due to suspension)					
Tests on Completion					
Contractor's obligations (contractor's obligation to perform the necessary tests)					
Delayed tests (procedure in case the tests are delayed by contractor or by owner)					
Retesting (rejection of the related work and requirement to repeat the tests in case the tests related to the work or to the part of the work are failed)					
Failure to pass tests on completion (failure in retesting of the sample *etc.*)					
Owner's Taking Over					
Taking over of the works and sections (acceptance of the work by owner)					
Taking over of parts of the works (acceptance of the part of the works)					
Inference with tests on completion (owner's obligation to accept tests on the date of completion in case the tests could not be completed due to act of owner)					
Surfaces requiring reinstatement (issue that the taking over certificate for the part of work does not certify the completion of the reinstatement of the surface or land unless otherwise is stated in this certificate)					
Defects Liability					
Completion of outstanding work and remedying defects (notice to the contractor for the defective works)					
Cost of remedying defects (determination of the party who bears the cost of remedying defects)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Extension of defects notification period (extension of defects notification period of the owner, in case building is not used properly)					
Failure to remedy defects (owner's right to determine a new date and give notice to contractor in case contractor can not remedy the defects in the specified time period and thus he is in default)					
Removal of defective work (in case the corrective repair for the defective work can not be carried out at the site, the contractor may remove it from the site)					
Further tests (engineer's right to request repetition of the tests in case performance of the work is suspected after correction of the defects)					
Right of access (until the issue of completion certificate, contractor's right of accession to the work except security limitation by owner)					
Contractor to search (contractor' s investigation on causes of defects and determination on how the cost is to be paid with respect to the party causing the defect)					
Performance certificate (contractor's being deemed not to have fulfilled his obligation in case engineer does not issue performance certificate)					
Unfulfilled obligations (after the issue of the performance certificate, the continuation of each party's responsibility for unfulfilled obligation until they fulfill their own obligation)					
Clearance of site (requirement for contractor to remove his equipment and material from the site upon receiving performance certificate)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Measurement and evaluation					
Works to be measured (measurement of works and determination of their value for payment)					
Method of measurement (carrying out of measurement on completed amount of work unless otherwise stated)					
Evaluation (engineer's determination of the amount of contract from the performed work)					
Omissions (contractor's notice to engineer in case engineer does not determine value of the omitted work)					
Variations and Adjustments					
Right to vary (engineer's request of variation at any time before the issuance of the acceptance certificate)					
Value engineering (contractor's official proposals to engineer in order to reduce the cost and accelerate the progress of work)					
Variation procedure (contractor's official proposals to engineer to reduce the cost and to accelerate the progress of work)					
Payment in applicable currencies (making the payment in the applicable currency in case various currencies are determined in the contract)					
Provisional sums (determination of the provisional sum depending on the engineer' s instruction)					
Day work (engineer's authority to instruct variation for small works on basis of the daily work)					
Adjustments for changes in legislation (adjustment of the contract amount according to the changes in law)					
Adjustments for changes in cost					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Contract Price and Payment					
The contract price (determination of the contract price)					
Advance payment (on how and when the advance payment to be made by owner)					
Application for Interim Payment Certificates (certificates that engineer must give to contractor for interim payments)					
Schedule of payments (programme on how the payment to be made according to the availability of payment schedule)					
Plant and materials intended for the works (payment of the cost for the allocated plant and material)					
Issue of interim payment certificates (receiving performance security by owner and issue of interim payment certificate by engineer)					
Payment (owner's payment to contractor)					
Delayed payment (procedure to be followed in case contractor does not receive payment on time)					
Payment of retention money (releasing the retented money)					
Statement at completion (contractor's responsibility to submit certain number of copy of the work completion certificate and supporting documents to engineer upon receiving acceptance certificate)					
Application for final payment certificate (contractor's responsibility to submit to engineer certain number of final situation report upon receiving the statement at completion)					
Discharge					
Issue of final payment certificate (issue of final payment certificate to owner by engineer)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Cessation of owner's liability					
Currencies of payment (procedure to be followed in case more than one currencies stated in the contract)					
Termination by Owner					
Notice to correct (engineer's notice to contractor in case he does not fulfill his responsibility in contract)					
Termination by owner (situations in which owner has right to terminate the contract)					
Valuation at date of termination (engineer's determination of the value of the work completed up to date of termination)					
Payment after termination (making payment after effectiveness of termination notice)					
Owner's entitlement to termination (procedure of termination)					
Suspension and Termination by contractor					
Contractor's entitlement to suspend work (contractor's suspension of work in case engineer does not fulfill his obligation)					
Termination by contractor (conditions under which contractor can make termination)					
Cessation of work and removal of contractor's equipment (contractor's cessation of work and removing equipment after notification of termination of work)					
Payment on termination					
Risk and responsibility					
Indemnities					
Contractor's care of the works (contractor's responsibility for the care of the works from the beginning of work until issue of the acceptance certificate)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Owner's risks (risks such as war, insurgence, *etc.*)					
Intellectual and Industrial Property Rights (infringement of patent, design, *etc.*)					
Limitation of Liability (situations that parties are not liable to each other for certain loses)					
Insurance					
General requirements for insurances					
Insurance for works and contractor's equipment					
Insurance against injury to persons and damage to property					
Insurance for contractor's personnel					
Force Majeure					
Definition of force majeure					
Notice of force majeure (duty of the party prevented from performing his obligation due to force majeure to notify other party)					
Duty to minimize delay (obligation of all parties to minimize delays in performance due to force majeure)					
Consequences of force majeure (contractor's right to request extension of time due to force majeure)					
Force majeure affecting subcontractor (impact of the subcontractor's force majeure situation on contractor's obligation)					
Optional termination, payment and release (parties' right to terminate the contract in case of prolonged force majeure situation)					
Release from performance under the law (cancellation of the contract in case the parties can not fulfill their obligations in contract due to the force majeure)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Claims, disputes and arbitration					
Contractor's claims (procedure to be followed in case of contractor's claims)					
Appointment of the dispute adjudication board					
Failure to agree dispute adjudication board (procedure to be applied in case of failure in agreement on dispute adjudication board)					
Obtaining dispute adjudication board's decision (procedure to be followed in case the parties are not satisfied with the decision)					
Amicable settlement (effort of parties that are not satisfied with the decision of dispute adjudication board to settle the dispute amicably before applying to arbitration)					
Arbitration (procedure on how and when to apply for arbitration)					
Failure to comply with dispute adjudication board's decision					
Expiry of dispute adjudication board's appointment (possibility to apply to arbitration in the disputes arising from the contract, in case of expiration of the duration of dispute adjudication board)					
Design					
General design obligations (contractor's responsibility for design and his liability to have designs performed by qualified designers)					
Contractor's documents (contractor's obligation for supplying of documents in language specified in contract)					
Contractor's undertaking (contractor's obligation to supply design and documents in compliance with law of the country specified in contract)					

Question 2.5 (continued)

Contract Clauses	Clauses included in contracts		Problematic Clauses		Your suggestions
	Yes	No	Yes	No	
Claims, disputes and arbitration					
Technical standards and regulations (compliance of the performed work with technical standards, regulations and environmental laws)					
Training (training of employees of owner by contractor as specified in the owner's requirement)					
"As-built" documents (contractor's obligation to provide "as-built" drawings)					
Operation and maintenance manuals (contractor's obligation to prepare operation and maintenance manuals)					
Design error (contractor's responsibility for the consequences of defective design supplied by contractor)					

2.6. What kind of problems emerges in contract management in general?
(You may indicate more than one option)

[ ] Receiving the payments
[ ] The existence of fuzzy clauses or absence of contract clause in the contract
[ ] Specifications
[ ] Default of the owner
[ ] Risk distribution
[ ] Default of the parties
[ ] Default of the contractor
[ ] Other (please specify)……

2.7. What kind of problems emerge in Public Procurement Contracts?
(You may indicate more than one option)

[ ] Receiving the payments
[ ] The existence of fuzzy clauses or absence of contract clause in the contract
[ ] Specifications
[ ] Default of the owner
[ ] Risk distribution
[ ] Default of the parties
[ ] Default of the contractor
[ ] Other (please specify)

2.8. What kind of problems emerges in FIDIC contracts in general?
(You may indicate more than one option)

[ ] Receiving the payments
[ ] The existence of fuzzy clauses or absence of contract clause in the contract
[ ] Specifications
[ ] Default of the owner
[ ] Risk distribution
[ ] Default of the parties
[ ] Default of the contractor
[ ] Other (please specify)

SECTION III

International Federation of the Engineers' Counsels
***Fédération Internationale des Ingénieurs Conseils* (FIDIC)**

General Information about the FIDIC Applications

3.1. Can your company make alterations in the FIDIC contracts which were previously prepared and proposed?

[ ] The company negotiates and bargains on the contract clauses and makes alterations
[ ] The company signs the proposed contract without any changes

3.2. Where does the company mostly encounter with FIDIC standard contracts?

[ ] Public Sector
[ ] Private Sector

3.3. Where did your company work?

[ ] Afghanistan	[ ] Albania	[ ] Algeria	[ ] Armenia
[ ] Azerbaijan	[ ] Belarus	[ ] Bosna-Hersek	[ ] Bulgaria
[ ] Chile	[ ] Croatia	[ ] Egypt	[ ] Etyopya
[ ] Georgia	[ ] Germany	[ ] Ghana	[ ] Greece
[ ] Guinea	[ ] India	[ ] Indonesia	[ ] Iran
[ ] Iraq	[ ] Ireland	[ ] Israel	[ ] Jordan
[ ] Kazakhstan	[ ] Kosovo	[ ] Kuwait	[ ] Kyrgyzstan
[ ] Latvia	[ ] Lebanon	[ ] Libya	[ ] Lithuania
[ ] Malawi	[ ] Malaysia	[ ] Mexico	[ ] Moldova
[ ] Mongolia	[ ] Morocco	[ ] Oman	[ ] Pakistan
[ ] Philippines	[ ] Poland	[ ] Qatar	[ ] Romania
[ ] Russian Fed.	[ ] Saudi Arabia	[ ] Serbia	[ ] Sudan
[ ] Syria	[ ] T.R.N.C.	[ ] Tajikistan	[ ] Tatars tan
[ ] Thailand	[ ] Tunisia	[ ] Turkmenistan	[ ] U.A.E.
[ ] U.S.A.	[ ] Ukraine	[ ] Uzbekistan	[ ] Yemen

[ ] Other (please specify)

3.4. Where did your company encounter with the application of FIDIC contracts?

[ ] Afghanistan	[ ] Albania	[ ] Algeria	[ ] Armenia
[ ] Azerbaijan	[ ] Belarus	[ ] Bosna-Hersek	[ ] Bulgaria
[ ] Chile	[ ] Croatia	[ ] Egypt	[ ] Etyopya
[ ] Georgia	[ ] Germany	[ ] Ghana	[ ] Greece
[ ] Guinea	[ ] India	[ ] Indonesia	[ ] Iran
[ ] Iraq	[ ] Ireland	[ ] Israel	[ ] Jordan
[ ] Kazakhstan	[ ] Kosovo	[ ] Kuwait	[ ] Kyrgyzstan
[ ] Latvia	[ ] Lebanon	[ ] Libya	[ ] Lithuania
[ ] Malawi	[ ] Malaysia	[ ] Mexico	[ ] Moldova
[ ] Mongolia	[ ] Morocco	[ ] Oman	[ ] Pakistan
[ ] Philippines	[ ] Poland	[ ] Qatar	[ ] Romania
[ ] Russian Fed.	[ ] Saudi Arabia	[ ] Serbia	[ ] Sudan
[ ] Syria	[ ] T.R.N.C.	[ ] Tajikistan	[ ] Tatars tan
[ ] Thailand	[ ] Tunisia	[ ] Turkmenistan	[ ] U.A.E.
[ ] U.S.A.	[ ] Ukraine	[ ] Uzbekistan	[ ] Yemen

[ ] Other (please specify)

3.5. When and where did your company first encounter with FIDIC?

Date: Country:

3.6. Was your company previously prepared and ready for FIDIC contracts when it first encountered with FIDIC Standard Contracts?

[ ] Yes [ ] No

3.7. Have you lived any difficulty in your company when your company first encountered with FIDIC?

[ ] Yes [ ] No

3.7.1 If your answer is 'yes', according to you what were the reasons of these difficulties?

[ ] Not having taken legal advice

[ ] Being unfamiliar with FIDIC contracts

[ ] Having the organization structure which was not satisfactory

[ ] Other (please specify)

3.7.2 Can you briefly explain how your company could overcome these difficulties?

……

……

3.8. How was your company's first experience with FIDIC?

[ ] Positive and successful [ ] Negative and unsuccessful

[ ] Neither positive nor negative

3.9. What are the advantages and disadvantages of FIDIC Standard contracts? Can you please indicate your comments and advices briefly?

Advantages:

[ ] It proposes a ready form

[ ] It pays attention to the interests of both parties

[ ] Other (please specify)……..

Disadvantages:

[ ] With the special provisions part, the right of he owner to request all terms and conditions from contractor is limited

[ ] The equality between the parties is broken down through the special provisions part

[ ] Other (please specify)……..

3.10. In which projects carried out by your company are FIDIC mostly used?

[ ] In international projects [ ] In domestic projects

SECTION IV

Comparison of FIDIC and Public Procurement Contracts

4.1. Do you think that Public Procurement Contracts can be used in international projects effectively?

[ ] Yes [ ] No

If your answer is 'yes' please indicate the name of the country where it can also be used effectively?.....

4.2. Where did your company mostly encounter FIDIC?

[ ] In public sector works [ ] In private sector works

[ ] Other……..

4.3. Which characteristics of FIDIC are superior to a Public Procurement Contract?

[ ] Being internationally well-known [ ] Being more familiar to the company

[ ] Paying attention to the balance of interest [ ] Other (please specify)……

4.4. Which characteristics of a Public Procurement Contract are superior to FIDIC?

[ ] Being easy to apply [ ] Being easier to understand and more familiar to the company

[ ] Paying attention to the balance of interest [ ] Other (please specify)……

Thank you for your contribution.

SECTION V

5.1. Which problem areas related to production drawings and specifications do you encounter during the execution of YIATS and FIDIC contract?

Problem Areas	YIATS		FIDIC	
	Problem	Non problem	Problem	Non Problem
Wrong interpretation of the project				
Discrepancy between Project and specification				
Lack in project detail				
Impreciseness of the project supplied by the owner				
Non compliance with the norms				
Delay in drawings supplied by the owner				
Delay in drawings supplied by subcontractor				
Delay in approval of drawings submitted to owner by contractor				
Lack of understanding owner's requirements and expectations in production drawings supplied by the contractor				
Changes in project				
Lack of coordination between owner and contractor				
Lack of coordination within contractor's organization				
Lack in coordination of contractor with subcontractor				
Scarcity in production designers with the knowledge of norms				
Language				
Standards of drawings				
Performance failure due to production drawings				
Lack of detail in performance calculations				

APPENDIX A2

QUESTIONNAIRE (TURKISH)

İNŞAAT SÖZLEŞMELERİ ANKET FORMU

BÖLÜM I

I İnşaat Şirketleri Hakkında Genel Bilgiler

1.1. Şirketinizin Adı ve Adresi:

……
……

1.2. Şirketinizin kuruluşu itibarı ile faaliyette bulunduğu süre?

[ ] 1-5 yıl [ ] 6-10 yıl [ ] 11-15 yıl
[ ] 16-20 yıl [ ] 21'den fazla

1.3. Şirketinizin tipi:
(Birden çok seçenek işaretleyebilirsiniz)

[ ] Anonim Şirket [ ] Limitet Şirket [ ] Komandit
[ ] Holding [ ] Tek ve bağımsız Şirket [ ] Diğer……

1.4. Şirketiniz hangi tip inşaat işlerini yapmaktadır?
(Birden çok seçenek işaretleyebilirsiniz)

[ ] Altyapı [ ] Konut [ ] Fabrikalar
[ ] Eğitim binaları [ ] Hastaneler [ ] Diğer……

1.5. Şirketinizin deneyimlerine göre aşağıda belirtilen sektörlerden hangisinde faaliyette bulunma beklentisi/arzusu daha yüksektir?
(Lütfen, seçeneklerin her birine 1'den 4'e kadar bir değer veriniz. 1 en az, 4 en çok beklentiyi göstermektedir)

[ ] Türk kamu sektörü [ ] Türk özel sektörü
[ ] Yurtdışı kamu sektörü [ ] Yurtdışı özel sektörü

1.6. Firmanızda "Sözleşme Yönetimi" ayrı bir departman şeklinde bulunmakta mıdır?

[ ] Yes [ ] No

1.7. Şirketinizin organizasyon şemasında hangi birimler bulunmaktadır?

[ ] İş geliştirme koordinatörlüğü
[ ] Mali ve idari işler
[ ] Renovasyon departmanı
[ ] Mekanik-Elektrik Koordinasyon grubu
[ ] Teknik Grup Yöneticiliği
[ ] Yapım Grup Yöneticiliği
[ ] Proje Yönetim departmanı
[ ] Dizayn departmanı
[ ] Kalite Kontrol departmanı
[ ] Bakım Onarım, alt yapı yöneticiliği
[ ] Eğitim departmanı
[ ] Stratejik Planlama
[ ] Diğer (lütfen belirtiniz)

1.8. Şirketinizin bünyesinde hangi konularda uzmanlar bulunmaktadır?

[ ] Tahkim konusunda uzmanlar
[ ] Sözleşmeler konusunda uzmanlar
[ ] FIDIC hakkında uzmanlaşmış personel
[ ] Kamu İhale Sözleşmesi hakkında bilgilendirilmiş personel
[ ] Hukukçu
[ ] Proje Yönetimi konusunda uzmanlar

1.9. Şirketinizde hangi konularda dışarıdan uzmanlık hizmeti alınmaktadır?

[ ] Alt yükleniciler
[ ] Tahkim
[ ] Dizayn
[ ] Hukuk
[ ] Diğer (lütfen belirtiniz)

1.10. Şirketiniz tarafından "Proje Yönetim Aracı" olarak hangi programlar kullanılmaktadır?

[ ] Primavera
[ ] Microsoft Project
[ ] Diğer (lütfen belirtiniz)

BÖLÜM II

Sözleşmeler

2.1. Şirketinizin bünyesinde, aşağıda yer alan sözleşme yönetimi unsurlarından hangisi/hangileri bulunmaktadır?

[ ] Fizibilite çalışmasını içeren dahili resmi prosedürler
[ ] İşveren isteklerini içeren dahili resmi prosedürler
[ ] Sözleşme terim ve koşullarının değerlendirilmesini içeren dahili resmi prosedürler
[ ] Sözleşmenin görüşme sürecinde firmanın özel dahili resmi prosedürü
[ ] Sözleşmenin ifa sürecine ait şirketin dahili resmi prosedürü

2.2. Şirketiniz aşağıda belirtilen sözleşme tiplerinden hangilerini kullanmaktadır?

[ ] Şirketin hazırlamış olduğu standart tip sözleşme
[ ] İşverenden alınıp müzakereler sırasında değitirilen tip sözleşme
[ ] Özel, belirli bir tip sözleşme mevcut değildir. Sadece protocol yapılmaktadır.
[ ] Kamu ihale süreci ve kamu standart sözleşmeleri kullanılmaktadır.
[ ] FIDIC
[ ] Diğer……...

2.3. Şirketiniz aşağıdaki belirtilen "Sözleşme Tutarı Belirleme Yöntemleri"nden hangileriyle en çok iş almaktadır?
(Lütfen yukarıdaki seçeneklere 1'den 5'e kadar değer veriniz. (1 en az kullanılan, 5 en çok kullanılan))

[ ] Götürü usulü
[ ] Birim fiyat
[ ] Maliyet + maliyetin belirli bir yüzdesi oranında gelir
[ ] Maliyet + ücret
[ ] Maliyet + garanti edilmiş azami tavan gelir
[ ] diğer (lütfen belirtiniz)……...

2.4. En çok tercih ettiğiniz ve en çok uygulaması olan ödeme çeşidi hangisidir?

	En çok tercih ettiğiniz	En çok uygulaması olan
Aylık Ödemeler	[ ]	[ ]
İnşa aşamaları ödemeleri/hak ediş	[ ]	[ ]
Sözleşmede belirlenmiş tarihlerde planlı ödemeler	[ ]	[ ]

2.5. Aşağıda adı geçen sözleşme maddelerinden hangileri şirketinizin sözleşmelerinde yer almaktadır? Hangilerinde uygulamada problemler çıkmaktadır? Bu konularda önerileriniz nelerdir? Sorunları nasıl aşmaktasınız?
(Sözleşmelerinizde yer alan tüm maddeleri içerecek şekilde birden çok seçeneği işaretleyebilirsiniz.)

Sözleşme Maddeleri	**Sözleşmelerde yer almaktadır**		**Uygulamada problem çıkmaktadır**		**Önerileriniz**
	Evet	**Hayır**	**Evet**	**Hayır**	
Genel Şartlar					
Tanımlar (sözleşmede kullanılan önemli kelimelerin tanımlar)					
Sözleşmenin yorumlanma yöntemi (sözleşmede aksi belirtilmemişse, bir cinsiyeti belirten bütün kelimeler bütün cinsiyetleri, tekil kelimeler çoğulları, çoğullar tekilleri kapsaması hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
İletişim-tebligat (onay verilmesi, sertifika verilmesi, ihtar verilmesi gibi konularda iletişimin nasıl yapılacağına dair hususları)					
Hukuk ve dil (sözleşmenin hangi hukuka göre yönetileceği ve sözleşmede esas alınan dilin ne olduğu hususu)					
Dokümanların önceliği (yorumlamada kolaylık olması açısından sözleşme dokümanlarının önceliğinin belirlenmesi hususu)					
Sözleşme anlaşması (kabul mektubundan itibaren örneğin ne kadar süre sonra sözleşmenin imzalanacağı hususu)					
Devir, yetki devri					
İhtimam gösterme borcu ve gizlilik (hangi tarafın hangi dokümanı kaç kopya yapması gerektiği, dokümanların nasıl saklanacağı gibi konuların belirtilmesi)					
Geciken çizimler ve talimatlar (ihtarın nasıl, ne zaman hangi durumda verileceği hususu)					
İşverenin müteahhit dokümanlarını kullanımı (fikri mülkiyet hakları hususu)					
Müteahhidin işverenin dokümanlarını kullanımı (müteahhit tarafından işverenin bilgisi olmadan sözleşme amacı dışındaki üçüncü kişilere işverenin dokümanlarının verilmemesi hususu)					
Gizli detaylar (müteahhidin gizli bilgileri açıklamaması hususudur)					
Hukuka uygunluk (hukuka uygun bir şekilde işlerin ifa edilmesi hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Müteselsil sorumluluk (müteahhit ortak girişim ise iş sahibine müteselsil sorumluluk durumunun belirlenmesi hususu)					
İşveren					
Şantiyeye ulaşma hakkı (işverenin inşaat arazisini müteahhide sağlaması hususu)					
İzinler, ruhsatlar veya onaylar (işverenin müteahhidin istediği zaman gerekli desteği sağlaması hususu)					
İşverenin personeli (işverenin, personelinin müteahhitle işbirliği yapması ve gerekli güvenliği alması hususu)					
İşverenin finansal düzenlemeleri (işverenin ödeme konusunda gerekli düzenlemeleri yaptığını gösterir belgenin müteahhidin istemesi durumunda müteahhide verilmesi hususu)					
İşverenin hak iddiaları (işverenin her hangi bir şekilde müteahhitten ödeme almaya hak kazanması ile ilgili husus)					
Mühendis					
Mühendisin görevleri ve yetkisi (işverenin mühendisi ataması ve mühendisin kendi yetkilerini kullanması hususu)					
Mühendisin yetki vermesi (mühendisin işi nasıl delege edebileceği ile ilgili husus)					
Mühendisin talimatları (mühendisin sözleşmeye uygun olarak müteahhitte işin ilerlemesi için gerekli talimatları vermesi ile ilgili husus)					
Mühendisin değiştirilmesi (işverenin isteği ile mühendisin nasıl değiştirileceği hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Mühendisin hakemliği ve kararı (mühendisin tarafları anlaşmaya ikna etmesi hakkaniyetli bir karar vermesi için tarafları dinlemesi ile ilgili husus)					
Müteahhit					
Müteahhidin genel yükümlülükleri					
İfa teminatı (müteahhidin ifa teminatını elde etme gereği ile ilgili husus)					
Müteahhidin temsilcisi (müteahhidin yerine temsilci ataması ve bu temsilciye gerekli yetki vermesi hususu)					
Alt yükleniciler (müteahhidin bütün işleri alt yüklenicilere yaptıramayacağı, alt yüklenicilere yaptırdığı işlerde de sorumluluğunu delege etmediği ile ilgili husus)					
Alt yüklenici sözleşmesinden doğan hakların temliki (alt yüklenici sözleşmelerinde yer alan garanti, bakım gibi hususların temliki)					
İşbirliği (müteahhidin sözleşmede belirtildiği gibi veya mühendisin belirlediği gibi işverenin personeliyle vs. işbirliği yapması hususu)					
İşe başlama ve icra etme (müteahhidin işleri sözleşmede belirtildiği gibi ve mühendisin uyarılarına göre gerçekleştirme yükümlülüğü ile ilgili husus)					
Güvenlik prosedürleri (müteahhidin güvenlik kurallarına uygun hareket etmesi hususu)					
Kalite kontrol (müteahhidin sözleşmeye uygunluğu sağlayacak şekilde kalite güvencesi sağlaması ile ilgili husus)					
Şantiye verisi (işverenin müteahhide gerekli bütün şantiye ile ilgili bilgileri verme yükümlülüğü ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Kabul edilmiş sözleşme tutarının yeterliliği (müteahhidin kabul ettiği inşaat miktarı ile ilgili yeterli bilgiye sahip olması gerekliliği ile ilgili husus)					
Öngörülemeyen fiziksel/maddi durumlar (müteahhidin önceden öngörülemeyen işin ifasını zorlaştıran durumların ortaya çıkması halinde mühendise durumu haber vermesi gerekliliği hususu)					
Yol hakkı ve tesisler (müteahhidin katlanması gereken masraflar)					
Engellenmeden Kaçınılması (işin devamlı gidişatını engelleyecek hususlardan kaçınılması)					
Erişim yolları (müteahhidin şantiyeye geçiş yolu ve köprülerin bozulmaması için gerekli tedbirleri alması gerektiği hususu)					
Malların taşınması (müteahhidin işler için gerekli her türlü lojistik işlerinden sorumlu olması ile ilgili)					
Müteahhidin ekipmanları (müteahhidin bütün ekipmanlarından sorumlu olması ve mühendisin onayı olmadan sahadan malzeme çıkaramaması hususu)					
Çevrenin korunması (müteahhidin çevreye zarar vermemesi gerekliliği hususu)					
Elektrik, su ve gaz (müteahhidin yararlandığı bütün enerji, su vs. servislerinden sorumlu olması hususu)					
İşverenin ekipmanları ve serbest kullanım malzemeleri (sözleşme düzenlenmesine göre işverenin müteahhide kendi sahip olduğu ekipmanları kullanıma verebileceği ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
İlerleme raporları (müteahhidin aylık ilerleme raporu sunma yükümlülüğü hususu)					
Şantiyenin güvenliği (müteahhidin izinsiz ve yetkisiz kişileri şantiye dışında tutma-içeri almama yükümlülüğü hususu)					
Müteahhidin şantiyedeki çalışması (müteahhidin şantiyede ve şantiye dışında da gerekli gördüğü ve mühendisin onayladığı yerlerde inşaat faaliyetlerini sürdürebilmesi ile ilgili husus)					
Fosiller (müteahhidin şantiyedeki fosillerin korunmasından ve çalışanları tarafından bu fosillere zarar verilmemesinden sorumlu olması hususu)					
İsmen Atanmış Alt yükleniciler					
"İsmen atanmış alt yükleniciler" tanımı					
Alt yüklenicileri ismen atamaya engeller (müteahhidin mühendisin onaylamadığı alt yüklenicilerle çalışmaması gerekliliği hususu)					
İsmen atanmış alt yüklenicilere ödemeler (müteahhidin, mühendisi onayladığı ödemeleri alt yüklenici sözleşmesine uygun olarak, alt yükleniciye ödemesi gerekliliği hususu)					
Ödemelerin kanıtı (mühendisin müteahhide ödeme belgesini verirken, müteahhidin daha önceki ödeme belgelerine göre alt yükleniciye ödeme yaptığını belgelemesini isteyebilmesi hususu)					
Çalışanlar ve işçiler					
Çalışanların ve işçilerin işe alınımı (müteahhidin bütün çalışanlarına ve işçilerine ödeme yapma,kalacak yer ayarlama, yiyecek ve ulaşımlarından sorumlu olması)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Ücret miktarı ve iş durumu— çalışma şartları (müteahhidin çalışanlarına sektörün genelinin altında olmayacak şekilde ödeme yapma yükümlülüğünün olması hususu)					
İşverenin hizmetindeki kişiler (müteahhidin işverenin personelinden birilerini kendi işine almaması gerektiği ile ilgili husus)					
İş hukuku (müteahhidin ilgili iş hukukuna uyması ve çalışanların hukuki haklarını vermesi gerekliliği ile ilgili husus)					
Çalışma saatleri (yerel olarak tatil olarak bilinen günlerde ve normal çalışma saatleri dışında şantiyede iş yapılmaması veya yapılması ile ilgili husus)					
Memur ve işçi için olanaklar (müteahhidin çalışanlara gerekli kalacak yeri ayarlama yükümlülüğü ile ilgili husus)					
Sağlık ve güvenlik (müteahhidin çalışanların sağlık ve güvenliği için gereken bütün önlemleri alması gerekliliği ile ilgili husus)					
Müteahhidin kontrolü (müteahhidin, işlerin gerçekleşmesi ve yükümlülüklerinin yerine getirilmesi için gerekli kontrolü yapması gerekliliği hususu)					
Müteahhidin çalışanları (müteahhidin çalışanlarının yaptıkları işte yeterli yetkinliğe, beceriye ve tecrübeye sahip olmalarının gerekliliği ile ilgili husus)					
Müteahhidin çalışanları ve ekipmanı hakkında kayıtlar (müteahhidin ekipmanları ve çalışanları hakkında mühendise rapor vermesi hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Düzensiz-sistemsiz davranış (müteahhidin, çalışanlarının iş disiplinine, hukuka aykırı davranışlara girmelerini engellemek için gerekli tedbirleri alması gerekliliği ile ilgili husus)					
Tesis, malzemeler ve işçilik					
Uygulama yöntemi (müteahhidin yapacağı işleri sözleşmede belirtildiği gibi, uygun işçilik ve gereken ekipmanlarla yapması ile ilgili husus)					
Numuneler (müteahhidin işi yapmadan önce gerekli malzeme ve numunelerini mühendisin onayına sunması ile ilgili husus)					
Denetleme (işverenin çalışanlarının makul zamanlarda şantiye, malzeme, üretim inşaat konularında gerekli incelemeleri yapması ve müteahhidin bu konuda işverenin personeline yardımcı olması ile ilgili husus)					
Testler (müteahhidin testler ile ilgili gerekli araçları ve dokümanları sağlama gerekliliği ile ilgili husus)					
Ret etme (testler sonucunda malzemelerin vs. uygun olmadığı sonucu görülürse mühendisin müteahhide ihtar vererek ret etmesi ile ilgili husus)					
Düzeltme işleri (müteahhidin mühendisin düzeltilmesi gerektiğini belirttiği işleri makul bir sürede yapma gerekliliği ile ilgili husus)					
Tesis ve malzemelerin mülkiyeti (inşaatta kullanılan malzemenin vs. ülke hukukuna uygun olması ile ilgili husus)					
Telif hakları (müteahhidin ödemesi gereken telif hakları hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
İşe Başlama, Gecikmeler ve Askıda Kalma					
İşlerin başlangıcı (başlangıç tarihinin ne zaman olduğu ile ilgili husus)					
Tamamlama zamanı (müteahhidin bütün işleri ve işlerin bölümlerini belirtilen bitirme zamanı içinde yapma gerekliliği ile ilgili husus)					
Program (müteahhidin mühendise iş programını verme gerekliliği ile ilgili husus)					
İşlerin tamamlanması için zamanın uzatılması (müteahhidin işi bitirmek için ek süre istemesi ile ilgili husus)					
Yetkililer tarafından neden olunan gecikmeler (müteahhidin belediye gibi kurumlarla gereken prosedürü takip etmesi ve netice olarak öngörülemeyen nedenlerle gecikme olması hususu)					
İlerleme hızı (işlerin planlanandan yavaş gitmesi halinde mühendisin müteahhitten iş programını revize etmesini istemesi ile ilgili husus)					
Gecikme zararları (müteahhitten kaynaklanan nedenlerle işlerdeki gecikmeler olması durumunda müteahhidin işverene gecikme cezası ödemesi ile ilgili husus)					
İşi askıya alma (mühendisin herhangi bir zamanda müteahhitten işi askıya almasını isteyebilmesi hususu)					
İşi askıya almanın sonuçları (müteahhidin mühendisin işleri askıya almasından dolayı işlerin gecikmesi durumu ile ilgili husus)					
Askıya alma durumunda tesis ve malzemeler için ödeme					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Uzatılmış askıya alma (askıya alma süresinin belli bir süreyi aşması durumunda müteahhidin mühendisten işleri devam edebilmesi için izin istemesi hususu)					
İşlerin yeniden başlaması (işlere devam izni verdikten sonra mühendisin askıya alma durumu sonucunda etkilenmiş olan malzeme vs. nin mühendis ve müteahhit tarafından tespit edilmesi ile ilgili husus)					
Tamamlama Testleri					
Müteahhidin yükümlülükleri (müteahhidin gerekli testleri yapması gerekliliği ile ilgili husus)					
Geciken testler (testlerin işveren tarafından veya müteahhit tarafından geciktirilmesi durumlarında yapılması gerekenlerle ilgili husus)					
Tekrar edilen testler (işin tümü veya bir bölümü ile ilgili testlerin geçmemesi durumunda ilgili işlerin iptal olması ve testlerin daha sonra yeniden yapılması gerekliliği ile ilgili husus)					
Tamamlama testlerinden geçememe durumu (tekrarlanan testlerde de numunelerin vs. geçmemesi durumu ile ilgili husus)					
İşverenin teslim alması					
İşlerin ve bölümlerin teslim alınması (işverenin işleri teslim alması ile ilgili husus)					
İşlerin bölümlerinin teslim alınması (mühendisin teslim alma sertifikası hazırlayabilmesi hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Tamamlama testlerinden sonuç çıkarımı (işverenin sorumlu olduğu nedenlerle müteahhidin testleri belirli bir süre içerisinde yapamaması durumunda, işverenin testlerin normal bitim tarihinde işleri kabul ettiğinin varsayılması ile ilgili husus)					
Yeniden işlem görmesi gerekli araziler / alanlar (devralma belgesinde aksi belirtilmedikçe, işin bir kısmı veya parçası için hazırlanan belge, yeniden eski haline getirilmesi gereken (veya yeniden düzenlenmesi gereken) herhangi bir arazinin veya diğer bir yüzeyin tamamlandığının belgelendiği anlamını taşımaması ile ilgili husus)					
Kusur Sorumluluğu					
İşin tamamlanması ve hataların düzeltilmesi (müteahhidin yaptığı işlerde kusur olması durumunda müteahhide bu konuda ihtar verilmesi ile ilgili husus)					
Hataların düzeltilmesinin maliyeti (kusurların düzeltilme maliyetinin kime ait olacağı ile ilgili husus)					
Kusur bildirme süresinin uzatılması (işverenin kusuru ihtar etme süresinin yapılan işin amacına uygun kullanılmaması durumunda belirli bir süre uzatılması ile ilgili husus)					
Ayıpların düzeltilememesi (müteahhidin kusurları belirli bir süre içerisinde düzeltmede temerrüde düşmesi durumunda, işverenin kusurun düzeltilmesi için bir tarih belirleyebilmesi ve konuyla ilgili müteahhide ihtar vermesi ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Hatalı yapılmış işin uzaklaştırılması (kusurlu yapılmış işin şantiyede düzeltilememesi durumunda müteahhidin o işi şantiyeden sökmesi ile ilgili husus)					
Diğer testler (kusurlu işlerin düzeltilmesi sonucunda yapılan işin performansından şüphe ediliyorsa, mühendisin sözleşmede bahsedilen testlerin tekrarını isteyebilmesi hususu)					
Erişim hakkı (ifa sertifikası yayınlanana kadar, müteahhidin işverenin güvenlik kısıtlamaları hariç olmak üzere işe ulaşabilmesi, erişebilmesi ile ilgili husus)					
Müteahhidin araması (mühendisin isteği üzerine müteahhidin kusurun nedenlerini araştırması ve masrafların kusurun hangi taraftan kaynaklandığına bağlı olarak nasıl ödeneceği ile ilgili husus)					
Performans sertifikası (mühendisin müteahhide ifa sertifikasını vermemesi durumunda müteahhidin yükümlülüklerini yerine getirmiş sayılmaması hususu)					
Yerine getirilmemiş yükümlülükler (ifa sertifikası yayınlandıktan sonra, her bir taraf o zamana kadar yerine getirilmemiş yükümlülüklerden sorumlu olmaları ve bu yükümlülüklerin yerine getirilinceye kadar sözleşmenin yürürlükte olduğunun varsayılması ile ilgili husus)					
Şantiyenin temizlenmesi (ifa sertifikasını alır almaz müteahhidin şantiyedeki ekipmanlarını, malzemelerini alması gerekliliği hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Ölçme ve Değerlendirme					
Ölçülecek işler (işlerin ölçülmesi ve işlerin ödeme yapılması için değerinin belirlenmesi ile ilgili husus)					
Ölçme metodu (ölçümün aksi belirtilmedikçe gerçekleşen miktarlar üzerinden yapılması ile ilgili husus)					
Değerlendirme (mühendisin sözleşme tutarını, yapılan işten nasıl belirleyeceği hususu)					
İptal (işlerde yapılan iptal değişikliği değerinin kararlaştırılmaması durumunda müteahhidin mühendise konuyla ilgili ihtar vermesi hususu)					
Değişiklikler ve Ayarlamalar					
Değiştirme hakkı (teslim alma / kabul sertifikasının verilmesinden önce herhangi bir zamanda mühendisin değişiklik yapılmasını isteyebilmesi ve bu değişikliklerin neleri kapsayabileceği ile ilgili husus)					
Değer mühendisliği (işlerin bitimini hızlandırmak, maliyetlerini azaltmak gibi konularda müteahhidin mühendise yazılı öneri sunabilmesi hususu)					
Değişiklik prosedürü (mühendisin değişiklik talimatı vermeden önce müteahhitten teklif istemesi durumunda müteahhidin en kısa zamanda yazılı olarak teklifi verme gerekliliği hususu)					
Üzerinde mutabık kalınmış para biriminde ödeme (birden fazla para biriminde ödeme yapılması söz konusu ise uygulanabilir para biriminde ödeme yapılması ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Geçici tutarlar (mühendisin talimatına bağlı olarak geçici tutarların belirlenmesi ile ilgili husus)					
Günlük iş (mühendisin küçük işlerde değişimin günlük iş bazında yapılması talimatını verebilmesi hususu)					
Kanun değişikliklerine uyum (sözleşme tutarının artması veya azalması sonucunu veren ülke hukukundaki değişmelere göre sözleşme tutarının ayarlanması ile ilgili husus)					
Maliyetteki değişimlere uyum					
Sözleşme Bedeli ve Ödemeler					
Sözleşme bedeli, fiyat (sözleşme tutarının nasıl belirleneceği ile ilgili husus)					
Ön ödemeler (avans ödemesini işverenin ne zaman ve nasıl yapacağı hususu)					
Ara ödeme sertifikalarına başvuru (ara ödemeler için müteahhidin mühendise vermesi gereken belgeler hususu)					
Ödeme programı (ödeme programının var olup olmaması durumlarına göre ödemelerin nasıl yapılacağı ile ilgili husus)					
İşte kullanılmak üzere tahsis edilmiş tesis ve malzemeler (tahsis edilmiş tesis ve malzemelerin masrafların ödenmesi hususu)					
Ara ödeme sertifikalarının verilmesi (işin tamamlanması güvencesi-işveren onaylamadan ara ödeme yapılmaması hususu)					
Ödeme (işverenin müteahhide ödeme yapması hususu)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Gecikmiş ödeme (müteahhidin vaktinde ödemeyi alamaması durumunda yapılması gerekenler ilgili husus)					
Ödemeyi durdurma (işin bütünü veya bir bölümü için teslim alma sertifikasının alınmış olma durumuna göre tutulmuş paranın serbest bırakılması ile ilgili husus)					
İş bitirme bildirimi (teslim alma sertifikasının alınmasından belirli bir süre içinde, müteahhidin mühendise belli sayıda kopya iş bitirme bildirimi ve destekleyici dokümanları sunması gerekliliği ile ilgili husus)					
Nihai ödeme sertifikasına başvuru (ifa sertifikasının alınmasından belirli bir süre içerisinde, müteahhidin, mühendise belirli sayıda son durum bildirimi göndermesi gereği ile ilgili husus)					
Yükümlülüklerin sona ermesi					
Nihai ödeme sertifikasının yayınlanması (müteahhidin gerekli belgeleri teslim etmesinden sonra mühendisin işverene son ödeme sertifikasını yayınlaması hususu)					
İşverenin yükümlülüğünün sona ermesi					
Ödemedeki para birimleri (sözleşmede belirtilen para biriminde veya birden fazla para birimi söz konusuysa hangisinin nasıl kullanılacağı ile ilgili husus)					
İşveren tarafından sözleşmenin feshi					
Düzeltme uyarısı (müteahhidin sözleşmedeki sorumluluğunu yerine getirmemesi durumunda, mühendisin müteahhide ihtar vermesi ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
İşveren tarafından fesih (hangi durumlarda işverenin sözleşmeyi fesih edeceği ile ilgili husus)					
Fesih günündeki değerlendirme (fesihten sonra mühendisin o zamana kadar yapılmış olan işlerin değerinin nasıl belirlendiği ile ilgili husus)					
Fesihten sonraki ödeme (fesih bildiriminin etkin hale gelmesinden sonra ödemenin yapılması hususu)					
İşverenin fesih hakkı (işverenin nasıl ve ne zaman fesih yapabileceği hususu)					
Müteahhidin işi durdurması ve feshi					
Müteahhidin işi askıya alma hakkına sahip olması (müteahhidin mühendisin yükümlülüklerini yerine getirmemesi durumunda işi askıya alması ile ilgili husus)					
Müteahhit tarafından işin feshi (hangi durumlarda ve ne zaman müteahhidin işi fesih edebileceği ile ilgili husus)					
İşin durdurulması ve müteahhidin ekipmanlarının kaldırılması (işin bitimini bildirilmesinden sonra müteahhidin işi bırakması ve ekipmanları şantiyeden alması hususu)					
Fesih durumundaki ödemeler					
Risk ve sorumluluk					
Tazminatlar					
müteahhidin işe özen göstermesi (müteahhidin işin başlamasından, işin bitimine kadar ve teslim alma sertifikasının yayınlamasına kadar işten sorumlu olması ile ilgili husus)					
İşverenin riskleri (savaş, ayaklanma gibi risklerle de ilgili husus)					
Fikri ve sınai mülkiyet hakları (patent, dizayn vs.nin ihlali ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Sorumluluğun sınırlandırılması (tarafların belli kayıplardan birbirlerine karşı sorumlu olmama durumları)					
Sigorta					
Sigortalar için genel şartlar					
İşler ve müteahhidin ekipmanları için sigortalar					
Yaralanmalara ve mülkiyet hasarlarına karşı sigorta					
Müteahhidin çalışanlarının sigortalanması					
Mücbir Sebep					
Mücbir sebebin tanımı					
Mücbir sebebin bildirisi (mücbir sebepten dolayı sorumluluklarını yerine getiremeyen tarafın diğer tarafa mücbir sebebi ve bundan dolayı yerine getiremediği sorumluluğunu belirtir yazıyı yazma gerekliliği ile ilgili husus)					
Gecikmeyi en aza indirme görevi (bütün tarafların mücbir sebepten dolayı ifadaki gecikmeleri en aza indirmekle yükümlü oluşu ile ilgili husus)					
Mücbir sebebin sonuçları (müteahhidin bildirimini yaptığı mücbir sebeplerden dolayı süre uzatımı isteyebilmesi ile ilgili husus)					
Alt yükleniciyi etkileyen mücbir sebep (müteahhidin alt yüklenicisinin mücbir sebepten etkilemesinin müteahhidin sorumluluklarını nasıl etkilediği ile ilgili husus)					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Zorunlu olmayan/isteğe bağlı bitirme, ödeme ve serbest bırakma (mücbir sebebin çok uzun olarak kabul edilen bir süre sürmesi durumunda veya uzun süre tekrarlaması durumunda gerekli bildirim ilgili tarafa zamanında yapılmışsa iki taraftan birinin sözleşmeyi fesih edebilme hususu)					
İfa yükümlülüğünden serbest bırakma bırakılması (tarafların sözleşmeden doğan sorumluluklarını mücbir sebepten kaynaklanan ve sadece mücbir sebeple sınırlı olmayan nedenlerle yerine getirememeleri durumunda sözleşmenin bitimi hususu)					
Talepler, Uyuşmazlık ve tahkim					
Müteahhidin talepleri (müteahhidin talepleri ve müteahhidin taleplerini hangi sürede ne şekilde yapması gerekliliği ile ilgili husus)					
Uyuşmazlık çözüm kurulunun atanması					
Uyuşmalık çözüm kurulunun atanamaması (uyuşmazlık çözüm kurulunun atanamaması durumda yapılması gerekenler ile ilgili husus)					
Uyuşmazlık çözüm kurulunun kararını vermesi (tarafların karardan tatmin olmama durumlarında yapılması gerekenler)					
Sulh (uyuşmazlık çözüm kurulunun kararından tatmin olmayan tarafların tahkime gitmeden önce sulh yoluyla çözüm bulmaya çalışmaları ile ilgili husus)					
Tahkim (tahkime ne zaman ve nasıl gidileceği ile ilgili husus)					
Uyuşmazlık çözüm kurulunun kararına uyulmaması durumu					

Soru 2.5 (devam)

Sözleşme Maddeleri	Sözleşmelerde yer almaktadır		Uygulamada problem çıkmaktadır		Önerileriniz
	Evet	Hayır	Evet	Hayır	
Uyuşmazlık hüküm kurulunun görev süresinin sona ermesi (sözleşmeden doğan anlaşmazlıklarda uyuşmazlık çözüm kurulunun süresinin bitmesi halinde tahkime gidilebileceği ile ilgili husus)					
Dizayn					
Genel dizayn yükümlülükleri (yüklenicinin dizayndan sorumlu olduğu ve dizaynın kalifiye dizayınlar tarafından yapılacağını sağlaması ile ilgili husus)					
Müteahhidin dokümanları (müteahhit tarafından sağlanması gereken dokumanlar ve bu dokümanların sözleşmede belirtilen dilde olması ve dokümanların onay prosedürü ile ilgili husus)					
Müteahhidin taahhüdü (müteahhidin sağladığı dizaynın, dokümanların, işin o ülkenin hukukuna uygun olması ile ilgili husus)					
Teknik standartlar ve düzenlemeler (yapılan işin güncel teknik standart ve düzenlemelere uygunluğu ile ilgili husus)					
Eğitim (müteahhidin, işveren isteklerinde belirtilen şekilde işverenin çalışanlarına eğitim vermesi ile ilgili husus)					
"As-built" dokümanları (müteahhidin "as-built" çizimlerini çizme yükümlülüğü ile ilgili husus)					
Kullanım ve bakım kitapları (müteahhidin kullanım ve bakım kitaplarını hazırlaması ile ilgili yükümlülüğü)					
Dizayn hataları (yüklenicinin sağladığı dizayndan kaynaklanan sorunların sonuçlarından yüklenicinin sorumlu olması ile ilgili husus)					

2.6. Genel olarak, Sözleşme Yönetiminde en çok ne tip problemler çıkmaktadır?
(Birden çok seçenek işaretleyebilirsiniz)

[ ] Ödemelerin alınması,
[ ] Açık ifade ile yazılmamış veya sözleşmeye hiç yazılmamış maddelerden kaynaklanan hususlar
[ ] Şartnameler
[ ] İş sahibi kusuru
[ ] Risk dağılımı
[ ] Tarafların kusuru veya temerrüde düşmesi
[ ] İnşaatçı kusuru
[ ] Diğer (lütfen belirtiniz)……

2.7. Genel olarak, Kamu İhale sözleşmelerinde en çok ne tip problemler ortaya çıkmaktadır?
(Birden çok seçenek işaretleyebilirsiniz)

[ ] Ödemelerin alınması,
[ ] Açık ifade ile yazılmamış veya sözleşmeye hiç yazılmamış maddelerden kaynaklanan hususlar
[ ] Şartnameler
[ ] İş sahibi kusuru
[ ] Risk dağılımı
[ ] Tarafların kusuru veya temerrüde düşmesi
[ ] İnşaatçı kusuru
[ ] Diğer (lütfen belirtiniz)……

2.8. Genel olarak, FIDIC sözleşmelerinde en çok ne tip problemler ortaya çıkmaktadır?
(Birden çok seçenek işaretleyebilirsiniz)

[ ] Ödemelerin alınması,
[ ] Açık ifade ile yazılmamış veya sözleşmeye hiç yazılmamış maddelerden kaynaklanan hususlar
[ ] Şartnameler
[ ] İş sahibi kusuru
[ ] Risk dağılımı
[ ] Tarafların kusuru veya temerrüde düşmesi
[ ] İnşaatçı kusuru
[ ] Diğer (lütfen belirtiniz)……

BÖLÜM III

Uluslararası Müşavir Mühendisler Federasyonu
International Federation of the Engineers' Counsels
Féderation Internationale des Ingénieurs Conseils (FIDIC)

FIDIC Uygulamaları Hakkında Bilgiler

3.1. Şirketiniz önceden hazırlanmış ve kendilerine sunulan FIDIC sözleşmelerini etkilemekte ve değiştirebilmekte midir?

[ ] Şirket sunulan sözleşme maddelerinde görüşme yapmakta ve bunların üzerinde değişiklik elde etmektedir.
[ ] Şirkete sunulan sözleşme değiştirilmeden ve kendilerine sunulmuş şekliyle kabul edilmektedir.

3.2. Şirket en çok hangi sektörde FIDIC standart sözleşmesi ile karşılaşmaktadır?

[ ] Kamu sektörü
[ ] Özel sector

3.3. Aşağıdaki ülkelerden hangilerinde firmanız çalışmıştır?

[ ] ABD	[ ] Afganistan	[ ] ABD	[ ] Afganistan
[ ] Azerbaycan	[ ] B.A.E.	[ ] Azerbaycan	[ ] B.A.E.
[ ] Bulgaristan	[ ] Cezayir	[ ] Bulgaristan	[ ] Cezayir
[ ] Etiyopya	[ ] Fas	[ ] Etiyopya	[ ] Fas
[ ] Gine	[ ] Gürcistan	[ ] Gine	[ ] Gürcistan
[ ] Irak	[ ] İran	[ ] Irak	[ ] İran
[ ] K.K.T.C.	[ ] Katar	[ ] K.K.T.C.	[ ] Katar
[ ] Kosova	[ ] Kuveyt	[ ] Kosova	[ ] Kuveyt
[ ] Litvanya	[ ] Lübnan	[ ] Litvanya	[ ] Lübnan
[ ] Meksika	[ ] Mısır	[ ] Meksika	[ ] Mısır
[ ] Özbekistan	[ ] Pakistan	[ ] Özbekistan	[ ] Pakistan
[ ] Rusya Fed.	[ ] S. Arabistan	[ ] Rusya Fed.	[ ] S. Arabistan
[ ] Suriye	[ ] Şili	[ ] Suriye	[ ] Şili
[ ] Tayland	[ ] Tunus	[ ] Tayland	[ ] Tunus
[ ] Umman	[ ] Ürdün	[ ] Umman	[ ] Ürdün

[ ] Diğer (lütfen belirtiniz)

3.4. Aşağıdaki ülkelerden hangilerinde FIDIC uygulamaları ile karşılaştınız?

[ ] ABD	[ ] Afganistan	[ ] ABD	[ ] Afganistan
[ ] Azerbaycan	[ ] B.A.E.	[ ] Azerbaycan	[ ] B.A.E.
[ ] Bulgaristan	[ ] Cezayir	[ ] Bulgaristan	[ ] Cezayir
[ ] Etiyopya	[ ] Fas	[ ] Etiyopya	[ ] Fas
[ ] Gine	[ ] Gürcistan	[ ] Gine	[ ] Gürcistan
[ ] Irak	[ ] İran	[ ] Irak	[ ] İran
[ ] K.K.T.C.	[ ] Katar	[ ] K.K.T.C.	[ ] Katar
[ ] Kosova	[ ] Kuveyt	[ ] Kosova	[ ] Kuveyt
[ ] Litvanya	[ ] Lübnan	[ ] Litvanya	[ ] Lübnan
[ ] Meksika	[ ] Mısır	[ ] Meksika	[ ] Mısır
[ ] Özbekistan	[ ] Pakistan	[ ] Özbekistan	[ ] Pakistan
[ ] Rusya Fed.	[ ] S. Arabistan	[ ] Rusya Fed.	[ ] S. Arabistan
[ ] Suriye	[ ] Şili	[ ] Suriye	[ ] Şili
[ ] Tayland	[ ] Tunus	[ ] Tayland	[ ] Tunus
[ ] Umman	[ ] Ürdün	[ ] Umman	[ ] Ürdün

[ ] Diğer (lütfen belirtiniz)

3.5. Şirketiniz ilk kez hangi tarihte ve hangi ülkede FIDIC ile karşılaşmıştır?

Tarih: Ülke:

3.6. Şirketiniz FIDIC sözleşmesi ile ilk karşılaştığında hazırlıklı mı idiniz?

[ ] Yes [ ] No

3.7. Şirketinizin FIDIC ile ilk karşılaşmasında, şirketinizde yaşadığınız herhangi bir güçlük oldu mu?

[ ] Yes [ ] No

3.7.1 Cevabınız evet ise, bu güçlükle karşılaşmanızın sizce nedenleri nelerdir?

[ ] Hukuki destek almamış olması

[ ] FIDIC sözleşmelerine yabancı olunması

[ ] Organizasyonumuzda yeterli yapılanmanın olmaması

[ ] Diğer (lütfen belirtiniz)……

3.7.2 Şirketiniz bu zorlukları nasıl aştı, kısaca belirtebilir misiniz?

……

……

3.8. Şirketinizin FIDIC standart sözleşmesi ile ilk tecrübesi nasıldır?

[ ] Olumlu ve başarılı [ ] Olumsuz ve başarısız

[ ] Ne olumlu nede olumsuz

3.9. FIDIC standart sözleşmesi avantaj ve dezavantajları nelerdir? Lütfen bu konudaki yorumlarınızı ve tavsiyelerinizi kısaca belirtir misiniz?

Advantages:

[ ] It proposes a ready form

[ ] It pays attention to the interests of both parties

[ ] Other (please specify)……..

Disadvantages:

[ ] With the secial provisions part, the right of he owner to request all terms and conditions from contractor is limited

[ ] The equality between the parties is broken down through the special provisions part

[ ] Other (please specify)……..

3.10. Genel olarak şirketinizin çalıştığı projelerde en çok nerede FIDIC kullanılmaktadır?

[ ] Uluslararası projelerde [ ] Yurtiçi projelerde

BÖLÜM IV

FIDIC ve Kamu İhale Standart Sözleşmesinin Karşılaştırılması

4.1. Şirketiniz Türk Kamu İhale Standart Sözleşmesinin uluslararası projelerde etkinlikle kullanılabilecek nitelikte olduğunu düşünmekte midir?

[ ] Yes [ ] No

"Evet" ise hangi ülkede?.....

4.2. Şirketiniz en çok hangi işlerde FIDIC ile karşılaşmıştır?

[ ] kamu sektörü işlerinde [ ] özel sektör işlerinde

[ ] diğer ……..

4.3. FIDIC' in hangi özellikleri Kamu İhale Standart sözleşmesinden üstündür?

[ ] Uluslar arası bilinirliği [ ] Şirkete daha tanıdık olması

[ ] Çıkar dengelerini gözetmesi [ ] Diğer (lütfen belirtiniz)……

4.4. Kamu İhale Standart Sözleşmesi'nin hangi özellikleri FIDIC'ten üstündür?

[ ] Uygulamasının kolay olması
[ ] Anlaşılmasının daha kolay ve şirkete daha tanıdık olması
[ ] Çıkar dengelerini gözetmesi
[ ] Diğer (lütfen belirtiniz)……

Değerli Katkılarınız için Teşekkür Ederim.

BÖLÜM V

5.1. Dizayn ile ilgili olarak çıkan problemlerin kaynakları sizce nelerdir?

Problem	YIATS		FIDIC	
	Problem	Problem değildir	Problem	Problem değildir
Projelerin yanlış yorumlanması				
Proje-şartname uyumsuzluğu				
Proje-detay eksiklikleri				
İşveren tarafından sağlanan projenin net olmaması				
Normlara uygunsuzluk				
İşveren tarafından sağlanan dizaynlarda çizimlerin gecikmesi				
Altyüklenici tarafından sağlanan dizaynlarda çizimlerin gecikmesi				
Yüklenici tarafından işverene sağlanan dizaynlarda onaylarda gecikme olması				
Yüklenici tarafından sağlanan dizaynlarda işverenin dizayn ile ilgili istek ve beklentilerinin net anlaşılmaması				
Projede yapılan değişikler				
İşveren ve müteahhidin koordinasyon eksikliği				
Müteahhidin kendi içindeki koordinasyon eksikliği				
Müteahhidin altyüklenici ile koordinasyon eksikliği				
Normları bilen dizaynır eksikliği				
Dil				
Pafta standartları (paftaların ne kadar detay ve bilgi içereceği vs.)				

Problem	YIATS		FIDIC	
	Problem	Problem değildir	Problem	Problem değildir
Dizaynın sözleşmede belirtilen performansı vermemesi (ses, aydınlatma, ısıtma, havalandırma, yangın, emniyet gibi konularda binanın performansının dizayndan kaynaklanan hatalar neden ile beklenen düzeyde olmaması)				
Performans hesaplarında (Ses izolasyonu, …) onay için istenen ayrıntının seviyesini net olmayışı				

APPENDIX C

RAW DATA

QUESTIONNAIRE

Question 1.2 The number of operation years since the establishment date of the companies

[0] 1-5 years [1] 6-10 years [2] 11-15 years
[1] 16-20 years [27] more than 21 years

Question 1.3 Type of the company

[24] Joint stock company [3] Limited company [0] Limited partnership
[4] Holding [0] Independent company [0] Other

Question 1.4 Kind of construction the company undertakes

[26] Infrastructure [25] Residents [23] Factories
[20] Educational buildings [19] Hospitals [19] Other

Question 1.5 Sectors where the companies prefer to operate

Turkish Public Sector

[5] 1 [10] 2
[10] 3 [6] 4

Turkish Private Sector

[12] 1 [10] 2
[4] 3 [.5.] 4

Public Sector Abroad

[7] 1 [6] 2
[3] 3 [15] 4

Private Sector Abroad

[6] 1 [8] 2
[10] 3 [7] 4

Question 1.6 whether the “contract management” department exists as a separate department in the company

[2] Yes [29] No

Question 1.7 Departments exiting in the organization of the companies

[26] Business Development Coordination
[29] Financial and Administrative Works
[2] Renovation Group Management
[18] Mechanical-Electrical Coordination Group
[27] Technical Group Management
[21] Construction Group Management
[25] Department of Project Management
[11] Department of Production drawings
[21] Department of Quality Control
[12] Maintenance Repair and Substructure Management
[9] Department of Education (training)
[7] Department of Strategic Planning
[5] Other

Question 1.8 Topics on which the companies have experts in their organizations

[14] Experts on arbitration
[.26.] Experts on contracts
[18] Staff specialized on FIDIC
[25] Staff specialized on Public Procurement Contract
[23] Experts on law
[29] Experts on project management

Question 1.9 Topics the companies get consultancy from outside of the company

[27] Subcontractors
[20] Arbitration
[27] Design
[23] Legal issues
[5] Other

Question 1.10 Usage of project management tools

[21] Primavera
[24] Microsoft Project
[3] Other

SECTION II

Contracts

Question 2.1 Contract management issues in the companies

[16] Official internal procedures covering the feasibility of works
[22] Official internal procedures covering the requests of the owner
[22] Official internal procedures covering the evaluation of the terms and conditions covered by the contract
[24] Official internal procedure of the company with regard to the negotiation phase of the contract
[27] Official internal procedure of the company with regard to the execution of the contract

Question 2.2 Contract types used by the companies

[27] Standard contract prepared by your company
[25] Standard contract taken from the owner and modified during the negotiation phase
[3] There is no special contract available. Only a memorandum of understanding is provided.
[25] Public procurement tendering procedure and public standard contracts are used.
[21] FIDIC
[4] Other

Question 2.3 Cost determination method the companies mostly work

Lump Sum

[7] 1 [1] 2
[2] 3 [7] 4
[14] 5

Cost + Fee

[14] 1 [6] 2
[7] 3 [2] 4
[2] 5

Unit Price

[3] 1 [3] 2
[2] 3 [10] 4
[13] 5

Cost + guaranteed maximum price ceiling

[24] 1 [2] 2
[2] 3 [1] 4
[2] 5

Cost + a percentage of cost

[15] 1 [4] 2
[4] 3 [6] 4
[2] 5

Question 2.4 The preference and usage of payment types

	The most preferred	The most used
Monthly Payments	[12]	[15]
Milestone Payments	[13]	[9]
Planned Payments made on dates determined in the contracts	[5]	[3]
$N_{missing}$	[1]	[4]

Table C.1 Clauses included in contracts / problematic issues (Question 2.5)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
General Provisions						
Descriptions	30	0	2	28	1	1
Interpretation	22	8	4	26	1	1
Communications	30	0	3	27	1	1
Law and Language	29	1	6	24	1	1
Priority of Documents	27	3	5	25	1	1
Contract Agreement	28	2	5	25	1	1
Assignment	29	1	4	26	1	1
Care and Supply of Documents	27	3	3	27	1	1
Delayed Drawings or instructions	29	1	12	18	1	1
Owner's use of contractors documents	22	8	2	28	1	1
Contractor's use of owner's documents	25	5	2	28	1	1
Confidential details	26	4	1	29	1	1
Compliance with laws	29	1	3	27	1	1
Joint and several liability	29	1	6	24	1	1
The Owner						
Right of access to the site	30	0	9	21	1	1
Permits, licenses or approvals	28	2	10	20	1	1
Owner's personnel	19	11	6	24	1	1
Owner's financial arrangements	25	5	13	17	1	1
Owner's claims	27	3	12	18	1	1
The engineer						
Engineer's duties and authority	24	6	9	21	1	1
Delegation by the engineer	27	3	3	27	1	1
Instructions of the engineer	22	8	10	20	1	1
Replacement of the engineer	21	9	5	25	1	1
Determinations	30	0	10	20	1	1
The contractor						
Contractor's general obligations	29	1	6	24	1	1
Performance Security	27	3	5	25	1	1
Contractor's representative	29	1	2	28	1	1
Subcontractors	22	8	7	23	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Assignment of benefit of subcontract	24	6	6	24	1	1
Co-operation	30	0	3	27	1	1
Setting out	30	0	8	22	1	1
Safety procedures	30	0	5	25	1	1
Quality Assurance	27	3	5	25	1	1
Site Data	29	1	8	22	1	1
Sufficiency of the Accepted Contract Amount	30	0	9	21	1	1
Unforeseeable physical conditions	28	2	11	19	1	1
Rights of way and facilities	20	10	3	27	1	1
Avoidance of interference	28	2	5	25	1	1
Access route	29	1	6	24	1	1
Transport of goods	29	1	3	27	1	1
Contractors equipment	29	1	3	27	1	1
Protection of the environment	29	1	2	28	1	1
Electricity, water and gas	29	1	5	25	1	1
Owner's equipment and material	26	4	4	26	1	1
Progress reports	30	0	2	28	1	1
Security of the site	30	0	3	27	1	1
Contractors operations on site	26	4	2	28	1	1
Fossils	24	6	4	26	1	1
Nominated subcontractors						
Definition of "nominated subcontractor"	25	5	4	26	1	1
Objection to nomination	27	3	3	27	1	1
Payments to nominated subcontractors	26	4	2	28	1	1
Evidence of payments	25	5	3	27	1	1
Staff and labor						
Engagement of staff and labor	27	3	3	27	1	1
Rates of wages and conditions of labor	18	12	4	26	1	1
Persons in the Service of owner	22	8	3	27	1	1
Labor laws	30	1	4	26	0	1
Working hours	27	3	5	25	1	1
Facilities for staff and labor	27	3	2	28	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Health and safety	29	1	4	26	1	1
Contractor's superintendence	29	1	3	27	1	1
Contractor's personnel	28	2	4	26	1	1
Records of contractor's personnel and equipment	29	1	2	28	1	1
Disorderly conduct	26	4	2	28	1	1
Plant, Materials and Workmanship						
Manner of execution	30	0	4	26	1	1
Samples	30	0	3	27	1	1
Inspection	28	2	2	28	1	1
Testing	30	0	3	27	1	1
Rejection	30	0	4	26	1	1
Remedial work	30	0	5	25	1	1
Ownership of plant and materials	29	1	3	27	1	1
Royalties	23	7	4	26	1	1
Commencement of works	30	0	9	21	1	1
Time for completion	30	0	11	19	1	1
Program	30	0	7	23	1	1
Extension of time for completion	30	0	13	17	1	1
Delays caused by authorities	30	0	11	19	1	1
Rate of progress	28	2	9	21	1	1
Delay damages	30	0	12	18	1	1
Suspension of work	28	2	10	20	1	1
Consequences of suspension	27	3	12	18	1	1
Payment for plant and materials in event of suspension	26	4	12	18	1	1
Prolonged suspension	25	5	9	21	1	1
Resumption of work	24	6	9	21	1	1
Tests on Completion						
Contractor's Obligations	30	0	2	28	1	1
Delayed Tests	26	4	5	25	1	1
Retesting	28	2	6	24	1	1
Failure to pass tests on completion	29	1	7	23	1	1
Owner's Taking Over						
Taking over of the works and sections	30	0	8	22	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Taking over of parts of the works	30	1	8	22	0	1
Inference with tests on completion	26	4	6	24	1	1
Surfaces requiring reinstatement	26	4	5	25	1	1
Defects Liability						
Completion of outstanding work and remedying defects	30	0	6	24	1	1
Cost of remedying defects	30	0	8	22	1	1
Extension of defects notification period	29	1	9	21	1	1
Failure to remedy defects	30	0	8	22	1	1
Removal of defective work	28	2	7	23	1	1
Further tests	27	3	5	25	1	1
Right of access	27	3	5	25	1	1
Contractor to search	23	7	3	27	1	1
Performance certificate	27	3	7	23	1	1
Unfulfilled obligations	29	1	7	23	1	1
Clearance of site	30	0	2	28	1	1
Measurement and Evaluation						
Works to be measured	29	1	6	24	1	1
Method of measurement	27	3	4	26	1	1
Evaluation	28	2	6	24	1	1
Omissions	26	4	7	23	1	1
Variations and Adjustments						
Right to vary	27	3	7	23	1	1
Value engineering	25	5	5	25	1	1
Variation procedure	26	4	4	26	1	1
Payment in applicable currencies	29	1	3	27	1	1
Provisional sums	27	3	6	24	1	1
Day work	26	4	5	25	1	1
Adjustments for changes in legislation	29	1	7	23	1	1
Adjustments for changes in cost	30	0	15	15	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Contract Price and Payment						
The contract price	28	2	2	27	1	2
Advance payment	30	0	4	26	1	1
Application for interim payment certificate	30	0	4	26	1	1
Schedule of payments	30	0	5	25	1	1
Plant and materials intended for the works	28	2	2	28	1	1
Issue of interim payment certificates	29	1	4	26	1	1
Payment	30	0	8	22	1	1
Delayed payment	28	2	11	19	1	1
Payment of retention money	28	2	8	22	1	1
Statement at completion	29	1	4	26	1	1
Application for final payment certificate	29	1	3	27	1	1
Discharge	30	0	9	21	1	1
Issue of final payment certificate	29	1	4	26	1	1
Cessation of owner's liability	30	0	2	28	1	1
Currencies of payment	30	0	2	28	1	1
Termination by Owner						
Notice to correct	29	1	5	25	1	1
Termination by owner	30	0	7	23	1	1
Valuation at date of termination	30	0	7	23	1	1
Payment after termination	29	1	5	25	1	1
Owners entitlement to termination	30	0	5	25	1	1
Suspension and Termination by Contractor						
Contractor's entitlement to suspend work	26	4	9	21	1	1
Termination by contractor	28	2	8	22	1	1
Cessation of work and removal of contractor's equipment	29	1	7	23	1	1
Payment on termination	30	0	8	22	1	1
Risk and Responsibility						
Indemnities	29	1	6	24	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Contractors care of the works	30	0	4	26	1	1
Owners risks	30	0	6	24	1	1
Intellectual and Industrial Property Rights	28	2	4	26	1	1
Limitation of Liability	25	5	6	24	1	1
Insurance						
General requirements for insurances	30	0	5	25	1	1
Insurance for works and contractors equipment	29	1	5	25	1	1
Insurance against injury to persons and damage to property	30	0	2	28	1	1
Insurance for contractor's personnel	30	0	2	28	1	1
Force Majeure						
Definition of force majeure	30	0	8	23	1	0
Notice of force majeure	30	0	5	25	1	1
Duty to minimize delay	26	4	3	26	1	2
Consequences of Force Majeure	29	1	5	25	1	1
Force Majeure affecting subcontractor	23	7	4	26	1	1
Optional termination, payment and release	25	5	6	24	1	1
Release from performance under the law	25	5	8	22	1	1
Claims, Disputes and Arbitration						
Contractor's claims	29	1	5	25	1	1
Appointment of the dispute adjudication board	27	3	4	26	1	1
Failure to agree dispute adjudication board	24	6	6	24	1	1
Obtaining dispute adjudication board's decision	24	6	5	25	1	1
Amicable settlement	26	4	5	25	1	1
Arbitration	27	3	6	24	1	1
Failure to comply with dispute adjudication board's decision	25	5	6	24	1	1

Table C.1 Clauses included in contracts / problematic issues (Question 2.5) (Cont.)

Contract Clauses	Clauses included in contracts		Problematic Issues		Clauses included	Problem Issues
	Yes	No	Yes	No	$N_{missing}$	$N_{missing}$
Expiry of DAB's appointment	22	8	4	26	1	1
Design						
General design obligations	21	7	5	23	3	3
Contractor's documents	24	4	7	21	3	3
Contractor's undertaking	24	4	7	21	3	3
Technical standards and regulations	26	2	5	23	3	3
Training	19	9	2	26	3	3
As-built documents	26	2	3	25	3	3
Operation and maintenance manuals	23	5	4	24	3	3
Design error	25	3	14	14	3	3

Table C.2 Contract Clauses (Question 2.5) (explanations on contract clauses can be found in Q.2.5 in Appendix A)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
1.	**General Provisions**	**91**	**14**
1.1.	Descriptions	100	7
1.2.	Interpretation	73	13
1.3.	Communications	100	10
1.4.	Law and language	97	20
1.5.	Priority of documents	90	17
1.6.	Contract agreement	93	17
1.7.	Assignment	97	13
1.8.	Care and supply of documents	90	10
1.9.	Delayed drawings or instructions	97	40
1.10.	Owner's use of contractors documents	73	7
1.11.	Contractor's use of owner's documents	83	7
1.12.	Confidential details	87	3
1.13.	Compliance with laws	97	10
1.14.	Joint and several liability	97	20
2.	**The Owner**	**86**	**33**
2.1.	Right of access to the site	100	30
2.2.	Permits, licenses or approvals	93	33
2.3.	Owner's personnel	63	20
2.4.	Owner's financial arrangements	83	43
2.5.	Owner's claims	90	40

Table C.2 Contract Clauses (Question 2.5) (continued)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
3.	**The Engineer**	**83**	**25**
3.1.	Engineer's duties and authority	80	30
3.2.	Delegation by the engineer	90	10
3.3.	Instructions of the engineer	73	33
3.4.	Replacement of the engineer	70	17
3.5.	Determinations	100	33
4.	**The Contractor**	**92**	**16**
4.1.	Contractor's general obligations	97	20
4.2.	Performance security	90	17
4.3.	Contractor's representative	97	7
4.4.	Subcontractors	73	23
4.5.	Assignment of benefit of subcontract	80	20
4.6.	Co-operation	100	10
4.7.	Setting out	100	27
4.8.	Safety procedures	100	17
4.9.	Quality assurance	90	17
4.10.	Site data	97	27
4.11.	Sufficiency of the accepted contract amount	100	30
4.12.	Unforeseeable physical conditions	93	37
4.13.	Rights of way and facilities	67	10
4.14.	Avoidance of interference	93	17
4.15.	Access route	97	20
4.16.	Transport of goods	97	10
4.17.	Contractors equipment	97	10
4.18.	Protection of the environment	97	7
4.19.	Electricity, water and gas	97	17
4.20.	Owner's equipment and free-issue material	87	13
4.21.	Progress reports	100	7
4.22.	Security of the site	100	10
4.23.	Contractors operations on site	87	7
4.24.	Fossils	80	13
5.	**Nominated Subcontractors**	**86**	**10**
5.1.	Definition of "nominated subcontractor"	83	13
5.2.	Objection to nomination	90	10
5.3.	Payments to nominated subcontractors	87	7
5.4.	Evidence of payments	83	10
6.	**Staff and Labor**	**88**	**11**
6.1.	Engagement of staff and labor	90	10
6.2.	Rates of wages and conditions of labor	60	13
6.3.	Persons in the service of owner	73	10
6.4.	Labor laws	97	13
6.5.	Working hours	90	17
6.6.	Facilities for staff and labor	90	7

Table C.2 Contract Clauses (Question 2.5) (continued)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
6.7.	Health and safety	97	13
6.8.	Contractor's superintendence	97	10
6.9.	Contractor's personnel	93	13
6.10.	Records of contractor's personnel and equipment	97	7
6.11.	Disorderly conduct	87	7
7.	**Plant, Materials and Workmanship**	**96**	**12**
7.1.	Manner of execution	100	13
7.2.	Samples	100	10
7.3.	Inspection	93	7
7.4.	Testing	100	10
7.5.	Rejection	100	13
7.6.	Remedial work	100	17
7.7.	Ownership of plant and materials	97	10
7.8.	Royalties	77	13
8.	**Commencement, Delays and Suspension**	**94**	**34**
8.1.	Commencement of works	100	30
8.2.	Time for completion	100	37
8.3.	Programme	100	23
8.4.	Extension of time for completion	100	43
8.5.	Delays caused by authorities	100	37
8.6.	Rate of progress	93	30
8.7.	Delay damages	100	40
8.8.	Suspension of work	93	33
8.9.	Consequences of suspension	90	40
8.10.	Payment for plant and materials in event of suspension	87	40
8.11.	Prolonged suspension	83	30
8.12.	Resumption of work	80	30
9.	**Tests on Completion**	**94**	**17**
9.1.	Contractor's obligations	100	7
9.2.	Delayed tests	87	17
9.3.	Retesting	93	20
9.4.	Failure to pass tests on completion	97	23
10.	**Owner's Taking Over**	**93**	**23**
10.1.	Taking over of the works and sections	100	27
10.2.	Taking over of parts of the works	97	27
10.3.	Inference with tests on completion	87	20
10.4.	Surfaces requiring reinstatement	87	17
11.	**Defects Liability**	**94**	**20**
11.1.	Completion of outstanding work and remedying defects	100	20
11.2.	Cost of remedying defects	100	27

Table C.2 Contract Clauses (Question 2.5) (continued)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
11.3.	Extension of defects notification period	97	30
11.4.	Failure to remedy defects	100	27
11.5.	Removal of defective work	93	23
11.6.	Further tests	90	17
11.7.	Right of access	90	17
11.8.	Contractor to search	77	10
11.9.	Performance certificate	90	23
11.10.	Unfulfilled obligations	97	23
11.11.	Clearance of site	100	7
12.	**Measurement and Evaluation**	**92**	**19**
12.1.	Works to be measured	97	20
12.2.	Method of measurement	90	13
12.3.	Evaluation	93	20
12.4.	Omissions	87	23
13.	**Variations and Adjustments**	**91**	**22**
13.1.	Right to vary	90	23
13.2.	Value engineering	83	17
13.3.	Variation procedure	87	13
13.4.	Payment in applicable currencies	97	10
13.5.	Provisional sums	90	20
13.6.	Day work	87	17
13.7.	Adjustments for changes in legislation	97	23
13.8.	Adjustments for changes in cost	100	50
14.	**Contract Price and Payment**	**97**	**16**
14.1.	The contract price	93	7
14.2.	Advance payment	100	13
14.3.	Application for interim payment certificates	100	13
14.4.	Schedule of payments	100	17
14.5.	Plant and materials intended for the works	93	7
14.6.	Issue of interim payment certificates	97	13
14.7.	Payment	100	27
14.8.	Delayed payment	93	37
14.9.	Payment of retention money	93	27
14.10.	Statement at completion	97	13
14.11.	Application for final payment certificate	97	10
14.12.	Discharge	100	30
14.13.	Issue of final payment certificate	97	13
14.14.	Cessation of owner's liability	100	7
14.15.	Currencies of payment	100	7
15.	**Termination by Owner**	**99**	**19**
15.1.	Notice to correct	97	17
15.2.	Termination by owner	100	23
15.3.	Valuation at date of termination	100	23

Table C.2 Contract Clauses (Question 2.5) (continued)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
15.4.	Payment after termination	97	17
15.5.	Owner's entitlement to termination	100	17
16.	**Suspension and Termination by Contractor**	**94**	**27**
16.1.	Contractor's entitlement to suspend work	87	30
16.2.	Termination by contractor	93	27
16.3.	Cessation of work and removal of contractor's equipment	97	23
16.4.	Payment on termination	100	27
17.	**Risk and Responsibility**	**95**	**17**
17.1.	Indemnities	97	20
17.2.	Contractors care of the works	100	13
17.3.	Owner's risks	100	20
17.4.	Intellectual and industrial property rights	93	13
17.5.	Limitation of liability	83	20
18.	**Insurance**	**99**	**12**
18.1.	General requirements for insurances	100	17
18.2.	Insurance for works and contractor's equipment	97	17
18.3.	Insurance against injury to persons and damage to property	100	7
18.4.	Insurance for contractor's personnel	100	7
19.	**Force Majeure**	**90**	**18**
19.1.	Definition of force majeure	100	26
19.2.	Notice of force majeure	100	17
19.3.	Duty to minimize delay	87	10
19.4.	Consequences of force majeure	97	17
19.5.	Force majeure affecting subcontractor	77	13
19.6.	Optional termination, payment and release	83	20
19.7.	Release from performance under the law	83	27
20.	**Claims, Disputes and Arbitration**	**85**	**17**
20.1.	Contractor's claims	97	17
20.2.	Appointment of the dispute adjudication board	90	13
20.3.	Failure to agree dispute adjudication board	80	20
20.4.	Obtaining dispute adjudication board's decision	80	17
20.5.	Amicable settlement	87	17
20.6.	Arbitration	90	20
20.7.	Failure to comply with dispute adjudication board's decision	83	20
20.8.	Expiry of dispute adjudication board's appointment	73	13

Table C.2 Contract Clauses (Question 2.5) (continued)

	Contract Clauses	Clause is included in contract (%)	Issue is problematic (%)
21	**Design**	**84**	**21**
21.1.	General design obligations	75	18
21.2.	Contractor's documents	86	25
21.3.	Contractor's undertaking	86	25
21.4.	Technical standards and regulations	93	18
21.5.	Training	68	7
21.6.	"As-built" documents	93	11
21.7.	Operation and maintenance manuals	82	14
21.8.	Design error	89	50

Question 2.6 Problems in contract management

[26] Receiving the payments
[24] The existence of fuzzy clauses or absence of contract clause in the contract
[9] Specifications
[14] Default of the owner
[9] Risk distribution
[12] Default of the parties
[7] Default of the contractor

Question 2.7 Problems in YIATS

[15] Receiving the payments
[16] The existence of fuzzy clauses or absence of contract clause in the contract
[5] Specifications
[13] Default of the owner
[8] Risk distribution
[5] Default of the parties
[6] Default of the contractor
[1] Other

Question 2.8 Problems in FIDIC

[15] Receiving the payments
[16] The existence of fuzzy clauses or absence of contract clause in the contract
[12] Specifications
[12] Default by owner
[7] Risk distribution
[7] Default by both parties
[6] Default by contractor
[1] Other

SECTION III

International Federation of the Engineers' Counsels
***Fédération Internationale des Ingénieurs Conseils* (FIDIC)**

General Information about the FIDIC Applications

Question 3.1 Bargaining power of the companies

[18] The company negotiates and bargains on the contract clauses and makes alterations
[12] The company signs the proposed contract without any changes
[1] $N_{missing}$

Question 3.2 Sectors where the companies mostly encounter FIDIC standard contracts

[17] Public Sector
[10] Private Sector
[4] $N_{missing}$

Question 3.3 Countries where the company worked

[8] Afghanistan	[3] Albania	[5] Algeria	[1] Armenia
[3] Azerbaijan	[2] Belarus	[0] Bosna-Hersek	[3] Bulgaria
[2] Chile	[0] Croatia	[1] Egypt	[1] Etyopya
[2] Georgia	[4] Germany	[0] Ghana	[1] Greece
[1] Guinea	[1] India	[0] Indonesia	[1] Iran
[8] Iraq	[1] Ireland	[0] Israel	[4] Jordan
[9] Kazakhstan	[2] Kosovo	[1] Kuwait	[3] Kyrgyzstan
[2] Latvia	[0] Lebanon	[4] Libya	[1] Lithuania
[0] Malawi	[1] Malaysia	[0] Mexico	[1] Moldova
[0] Mongolia	[2] Morocco	[0] Oman	[1] Pakistan
[0] Philippines	[2] Poland	[2] Qatar	[3] Romania
[11] Russian Fed.	[8] Saudi Arabia	[0] Serbia	[1] Sudan
[1] Syria	[1] T.R.N.C.	[3] Tajikistan	[1] Tatars tan
[0] Thailand	[0] Tunisia	[4] Turkmenistan	[5] U.A.E.
[0] U.S.A.	[4] Ukraine	[5] Uzbekistan	[1] Yemen
[2] Other			

Question 3.4 Countries where the company encountered the application of FIDIC contracts

[5] Afghanistan	[3] Albania	[1] Algeria	[0] Armenia
[3] Azerbaijan	[1] Belarus	[0] Bosna-Hersek	[2] Bulgaria
[0] Chile	[0] Croatia	[0] Egypt	[0] Etyopya
[1] Georgia	[1] Germany	[0] Ghana	[0] Greece
[0] Guinea	[1] India	[0] Indonesia	[0] Iran
[2] Iraq	[0] Ireland	[0] Israel	[2] Jordan
[2] Kazakhstan	[2] Kosovo	[0] Kuwait	[2] Kyrgyzstan
[0] Latvia	[0] Lebanon	[0] Libya	[0] Lithuania
[0] Malawi	[0] Malaysia	[0] Mexico	[0] Moldova
[1] Mongolia	[0] Morocco	[0] Oman	[1] Pakistan
[0] Philippines	[1] Poland	[0] Qatar	[3] Romania
[4] Russian Fed.	[1] Saudi Arabia	[2] Serbia	[0] Sudan
[0] Syria	[0] T.R.N.C.	[2] Tajikistan	[0] Tatars tan
[0] Thailand	[0] Tunisia	[0] Turkmenistan	[2] U.A.E.
[0] U.S.A.	[0] Ukraine	[1] Uzbekistan	[1] Yemen
[3] Other			

Question 3.5 Countries where the company first encountered FIDIC

[6] Turkey
[2] Kazakhstan
[1] Polonia
[1] Tajikistan
[1] Iraq
[2] Russia
[1] Bulgaria
[1] Uzbekistan
[1] Albania
[1] Pakistan
[1] Jordan
[1] Azerbaijan
[1] Saudi Arabia

Question 3.6 Whether the companies were previously prepared and ready for FIDIC contracts when they first encountered FIDIC Standard contracts

[20] Yes [7] No

[4] $N_{missing}$

Question 3.7 Whether the companies have lived any difficulty when they first encountered FIDIC

[5] Yes [22] No

[4] $N_{missing}$

Question 3.7.1 Reasons of the difficulties encountered

[0] Not having taken legal advice

[3] Being unfamiliar with FIDIC contracts

[4] Having the organization structure which was not satisfactory

[0] Other (please specify)

Question 3.8 First experience of the companies with FIDIC

[17] Positive and successful [1] Negative and unsuccessful

[9] Neither positive nor negative [4] $N_{missing}$

Question 3.9 Advantages and disadvantages of FIDIC

Advantages:

[20] It proposes a ready form

[27] It pays attention to the interests of both parties

[0] Other

Disadvantages:

[5] With the special provisions part, the right of he owner to request all terms and conditions from contractor is limited

[12] The equality between the parties is broken down through the special provisions part

[1] Other

Question 3.10 Projects where FIDIC is mostly used

[27] In international projects [2] In domestic projects

[2] $N_{missing}$

SECTION IV

Comparison of FIDIC and Public Procurement Contracts

Question 4.1 Efficiency of YIATS in international projects

[6] Yes [22] No

[3] $N_{missing}$

Question 4.2 Where FIDIC is mostly encountered

[16] In public sector works [12] In private sector works

[5] $N_{missing}$

Question 4.3 Characteristics of FIDIC which are superior to YIATS

[25] Being internationally well-known [2] Being more familiar to the company

[24] Paying attention to the balance of interest [0] Other

Question 4.4 Characteristics of YIATS which are superior to FIDIC

[6] Being easy to apply [13] Being easier to understand and more familiar to the company

[0] Paying attention to the balance of interest [3] Other

Question 5.1 Production drawings and specification related problems

Problem Areas	YIATS		FIDIC	
	Problem	Non problem	Problem	Non Problem
Wrong interpretation of the project	18	9	18	9
Discrepancy between Project and specification	22	5	18	9
Lack in project detail	22	5	20	7
Impreciseness of the project supplied by the owner	22	5	21	6
Non compliance with the norms	18	9	18	9
Delay in drawings supplied by the owner	19	8	18	9
Delay in drawings supplied by subcontractor	19	7	18	9
Delay in approval of drawings submitted to owner by contractor	21	7	17	10
Lack of understanding owner's requirements and expectations in production drawings supplied by the contractor	23	4	22	5
Changes in project	16	11	13	14
Lack of coordination between owner and contractor	19	8	19	8
Lack of coordination within contractor's organization	19	8	21	6
Lack in coordination of contractor with subcontractor	19	8	20	7
Scarcity in designers with the knowledge of norms	16	11	17	10
Language	9	18	12	15
Standards of drawings	14	13	16	11
Performance failure due to production drawings	19	8	20	7
Lack of detail in performance calculations	19	8	20	7

APPENDIX D1

QUESTIONS FOR TELEPHONIC INTERVIEWS (ENGLISH)

1. What are the causes of the problems encountered in YIATS?

2. What are the advantages of FIDIC compared to YIATS?

3. What are your recommendations for successful execution of the contracts (FIDIC and YIATS)?

4. Do you encounter with the fuzziness originated from contract clauses in FIDIC?

5. Which cost determination method is frequently used in YIATS and in FIDIC?

APPENDIX D2

QUESTIONS FOR TELEPHONIC INTERVIEWS (TURKISH)

1. Kamu İhale Sözleşmesinde çıkan sorunlar nelerden kaynaklanıyor?

2. Uygulamada FIDIC Sözleşmesinin YIATS'den avantajlı olduğu yönler nelerdir?

3. FIDIC ve YIATS'de genel olarak başarı için tavsiyeleriniz nelerdir?

4. FIDIC'te sözleşme maddelerinden kaynaklanan belirsizlikler ile karşılaşıyor musunuz?

5. Hangi ödeme şekilleri FIDIC ve YIATS'de sık kullanılmaktadır?

APPENDIX E1

QUESTIONS FOR FACE-TO-FACE INTERVIEWS (ENGLISH)

1. What kind of problems do you encounter in the application of the contracts (especially in YIATS and FIDIC contracts)? What do you do to prevent these problems? Do these problems emerge because of the original form of contract or because of the modifications done in the contract clauses?

2. Do you have "Contract Management" department in your company? If you do not have any "Contract Management Department", how is the function of this department is accomplished within your organization?

3. Do the problems emerge in the execution of FIDIC differ according to contracts executed for the domestic or international projects? Do the problems emerge in execution of FIDIC differ according to contracts executed for the public or private sector?

4. What are the reasons of problems encountered in the execution of FIDIC and of YIATS in general? Can you give examples for these problems?

5. What kind of situations have you encountered which lead you to apply to arbitration or to court in the execution of FIDIC or YIATS contracts?

6. What type of financial problem do you encounter in the execution of YIATS/FIDIC? What are the causes of these problems? How do you solve these problems?

7. What type of rework problem do you encounter in the execution of YIATS/FIDIC? What are the causes of these problems? How do you solve these problems?

8. What type of problem related to "non compliance of work with owner's requirements or specifications" do you encounter in the execution of YIATS/FIDIC? What are the causes of these problems? How do you solve these problems?

9. Do you encounter problems due to the engineer's instructions in the execution of FIDIC?

10. Do you encounter problems due to the supervising engineer's instructions in the execution of YIATS?

11. Do you think that the fair risk distribution between the parties in contract diminishes the risk of emergence of problems in the execution of the contracts (YIATS or FIDIC)?

12. Could you please provide examples of executed FIDIC and YIATS contracts?

APPENDIX E2

QUESTIONS FOR FACE-TO-FACE INTERVIEWS (TURKISH)

1. Sözleşmelerin uygulamalarında ne tür problemlerle karşılaşmaktasınız (özellikle YIATS ve FIDIC sözleşmelerinde)? Bu problemleri önlemek için neler yapıyorsunuz? Bu problemler sözleşmenin orijinal halinden mi kaynaklanıyor yoksa sözleşmelerin değiştirilecek kullanılmasından mı kaynaklanıyor?

2. "Contract Management" departmanınız var mı? Böyle bir departmanınız yoksa nasıl organize oluyorsunuz?

3. FIDIC'te sözleşmenin uygulanmasından kaynaklanan problemler o sözleşmenin Türkiye veya yurtdışı projelerine ait olmasına göre veya işverenin kamu veya özel sektör olmasına göre farklılık gösteriyor mu?

4. YIATS'ın ve FIDIC'in uygulanmalarında genel olarak karşılaşılan sorunların sebepleri sizce nelerdir? Örnekler verir misiniz?

5. YIATS'ın ve FIDIC'in uygulamalarında tahkime veya mahkemeye başvurduğunuz ne gibi durumlar oldu?

6. YIATS'ın ve FIDIC'in uygulamalarında ne tür ödeme problemleri ile karşılaşıyorsunuz? Bu problemler neden çıkıyor? Nasıl çözüyorsunuz?

7. YIATS'ın ve FIDIC'in uygulamalarında bir işin tekrar yapılması ile ilgili ne tür problemler ile karşılaşıyorsunuz? Bu problemler neden çıkıyor? Nasıl çözüyorsunuz?

8. YIATS'ın ve FIDIC'in uygulamalarında eksik iş veya işin istenen şekilde yapılmaması ile ilgili ne tür problemler ile karşılaşıyorsunuz? Bu problemler neden çıkıyor? Nasıl çözüyorsunuz?

9. FIDIC'in uygulamalarında mühendisin talimatları ile ilgili bir problemle karşılaşıyor musunuz?

10. YIATS'ın uygulamalarında kontrol mühendisinin talimatları ile ilgili bir problemle karşılaşıyor musunuz?

11. Sizce risklerin sözleşmede taraflar arasında adil risk dağılımı sözleşmelerin yürütülmesinde problem çıkma riskini azaltır mı?

12. FIDIC ve YIATS tipi uygulanmış sözleşme örneklerinizden verebilir misiniz?

APPENDIX F

DATA FOR STATISTICAL ANALYSES

In Appendix F, the data for statistical analyses is given. Table F.1 presents answers of the companies to Question 2.7 which was about the emergence of problems in YIATS. Focusing on Question 2.8, Table F.2 shows answers of the companies about the problems emerging in FIDIC contracts. Both Table F.3 and F.4 present the data obtained through Question 2.5 where Table F.3 gives answers about existence of clauses and Table F.4 shows the data about existence of problems.

Table F.1 Problems in YIATS (Question 2.7)

		PROBLEMS						
		Receiving payment	**Risk distribution**	**Fuzziness**	**Default by both parties**	**Default by contractor**	**Default by owner**	**Specifications**
Companies	**C1**	1	2	2	2	2	2	2
	C2	1	2	2	2	2	2	2
	C3	1	2	2	2	1	1	2
	C4	2	2	2	2	2	2	2
	C5	1	1	1	2	2	2	2
	C6	1	2	1	2	2	2	1
	C7	2	2	1	2	2	1	1
	C8	2	2	2	2	2	2	2
	C9	2	2	1	2	2	1	2
	C10	2	1	2	2	2	2	2
	C11	2	1	2	1	1	2	2
	C12	1	1	2	2	2	1	2
	C13	1	2	2	2	1	2	2
	C14	1	2	1	2	2	2	2
	C15	2	2	2	2	2	1	2
	C16	2	2	2	2	2	2	2
	C17	2	2	1	2	2	2	2
	C18	2	2	2	1	2	2	2
	C19	2	2	2	2	2	2	2
	C20	2	2	1	2	2	2	2
	C21	2	2	1	1	2	2	1
	C22	2	2	1	2	2	1	2
	C23	1	2	1	2	1	2	1
	C24	1	2	1	2	2	1	2
	C25	2	2	2	2	2	1	2
	C26	2	1	1	2	2	2	2
	C27	1	1	1	1	2	1	1
	C28	1	1	1	2	2	1	2
	C29	1	2	1	2	2	1	2
	C30	1	1	2	2	1	1	2
	C31	1	2	1	1	1	1	2

(1=yes, 2=no)

Table F.2 Problems in FIDIC (Question 2.8)

		PROBLEMS						
		Receiving payment	**Risk distribution**	**Fuzziness**	**Default by both parties**	**Default by contractor**	**Default by owner**	**Specifications**
Companies	**C1**	2	2	2	2	2	2	2
	C2	1	2	2	1	2	2	1
	C3	1	2	2	2	1	1	2
	C4	1	1	1	2	2	2	2
	C5	1	2	1	2	2	2	1
	C6	2	2	2	2	2	2	2
	C7	2	2	1	2	2	1	1
	C8	1	1	2	2	2	1	2
	C9	2	2	1	2	2	2	1
	C10	2	2	1	1	2	2	2
	C11	1	1	2	2	2	1	2
	C12	1	2	2	2	1	2	2
	C13	1	2	2	2	2	1	1
	C14	1	2	1	2	2	1	1
	C15	1	2	1	2	2	2	1
	C16	2	1	2	2	2	2	2
	C17	2	1	1	2	2	2	1
	C18	1	1	1	2	2	2	2
	C19	2	2	1	2	2	2	2
	C20	1	1	1	2	2	2	1
	C21	2	2	1	2	2	2	2
	C22	1	2	1	2	2	2	1
	C23	1	2	2	2	2	2	2
	C24	2	2	1	2	2	1	2
	C25	2	2	2	2	2	2	2
	C26	2	2	2	1	1	1	2
	C27	2	2	2	1	2	2	1
	C28	2	2	1	2	2	1	2
	C29	2	2	1	1	1	1	2
	C30	2	2	2	1	1	1	1
	C31	1	2	2	1	1	1	2

(1=yes, 2=no)

Table F.3 Existence of clauses (Question 2.5)

		Clause Numbers as defined in Table C.2											
		1.9.	**2.4.**	**3.3.**	**3.5.**	**4.2.**	**4.9.**	**4.10.**	**4.11.**	**4.12.**	**4.17.**	**4.19.**	**5.3.**
Companies	**C1**	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	2	1	1	1	1	1	1	1	1	1	1
	C3	1	2	1	1	1	1	2	1	1	1	1	1
	C4	1	2	2	2	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	1	1	1	1	1	1	2
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	2	1	1	1	1	1	1	1	1
	C8	1	1	2	2	1	1	1	1	1	1	1	2
	C9	1	2	1	2	1	1	1	1	1	1	1	2
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	1	2	1	2	1	1	1	1	1	1	1	1
	C18	1	1	1	1	1	1	2	1	1	1	2	1
	C19	1	2	1	1	1	1	1	1	1	1	1	1
	C20	1	2	1	1	1	1	1	1	1	1	1	1
	C21	1	2	1	2	2	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	1	1	1	1
	C23	1	1	2	2	1	1	1	1	1	2	1	2
	C24	1	1	1	2	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	1	2	1	2	1	1	1	1	1	1	1	1
	C27	1	1	1	1	1	1	1	2	1	1	1	1
	C28	1	2	1	1	1	1	2	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	2	2	1	1	1	1	1	1	1	1	1	1
	C31	1	1	1	1	1	1	1	1	1	1	1	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

		Clause Numbers as defined in Table C.2											
		5.4.	**6.2**	**6.4**	**6.5.**	**6.10.**	**7.4.**	**7.5.**	**7.6.**	**7.7.**	**7.8.**	**8.1.**	**8.2.**
Companies	**C1**	1	2	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	2	1	1	1	1	1	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	2	1	1	1	1	1	1	1	2	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	2	1	2	1	1	1	1	1	1	1	1
	C8	2	2	1	1	1	1	1	1	1	2	1	1
	C9	2	2	1	2	1	1	1	1	1	2	1	1
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	2	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	2	1	1
	C17	2	2	1	1	1	1	1	1	2	2	1	1
	C18	1	2	1	2	1	1	1	1	1	2	1	1
	C19	1	1	1	1	1	1	1	1	1	1	1	1
	C20	1	1	1	1	1	1	1	1	1	2	1	1
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	1	1	1	1
	C23	2	1	1	1	1	1	1	1	1	1	1	1
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	2	2	1	1	1	1	1	1	1	1	1	1
	C27	1	2	1	1	1	1	1	1	1	1	1	1
	C28	1	1	1	1	1	1	1	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	1	2	1	1	2	1	1	1	1	1	1	1
	C31	1	1	1	1	1	1	1	1	1	1	1	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		8.3.	8.4.	8.5.	8.6.	8.7.	8.8.	8.9.	8.10.	8.11.	8.12.	9.1.	9.2.
Companies	C1	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	1	1	1	1	1	1	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	2	2	2	2	2	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	1	1	1	1	1	1	1	1	1
	C8	1	1	1	1	1	1	2	2	2	2	1	1
	C9	1	1	1	2	1	2	2	2	2	2	1	2
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	1	1	1	2	1	1	1	1	2	2	1	2
	C18	1	1	1	1	1	1	1	1	1	1	1	1
	C19	1	1	1	1	1	1	1	1	1	1	1	1
	C20	1	1	1	1	1	1	1	1	1	1	1	2
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	1	1	1	1
	C23	1	1	1	1	1	1	1	1	1	1	1	1
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	1	1	1	1	1	1	1	2	2	2	1	1
	C27	1	1	1	1	1	1	1	1	1	2	1	1
	C28	1	1	1	1	1	1	1	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	1	1	1	1	1	1	1	1	1	1	1	2
	C31	1	1	1	1	1	1	1	1	1	1	1	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		9.3.	**9.4.**	**10.1.**	**10.2.**	**10.3.**	**11.1.**	**11.2.**	**11.3.**	**11.4.**	**11.5.**	**11.6.**	**11.8.**
Companies	**C1**	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	1	1	1	1	1	1	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	1	1	1	1	1	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	1	1	1	1	1	1	1	1	1
	C8	1	1	1	1	1	1	1	1	1	1	1	1
	C9	1	1	1	1	2	1	1	2	1	1	1	1
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	2	1	1	1	1	1	1	1
	C17	2	2	1	1	2	1	1	1	1	2	2	2
	C18	1	1	1	1	1	1	1	1	1	1	1	2
	C19	1	1	1	1	1	1	1	1	1	1	1	1
	C20	1	1	1	1	1	1	1	1	1	1	1	2
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	1	1	1	1
	C23	1	1	1	1	1	1	1	1	1	2	2	2
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	1	1	1	1	1	1	1	1	1	1	1	1
	C27	1	1	1	1	1	1	1	1	1	1	1	2
	C28	1	1	1	1	1	1	1	1	1	1	1	2
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	2	1	1	1	2	1	1	1	1	1	1	1
	C31	1	1	1	1	1	1	1	1	1	1	2	2

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		11.9.	**11.10.**	**12.1.**	**12.2.**	**12.3.**	**12.4.**	**13.2.**	**13.4.**	**13.5.**	**13.6.**	**13.7.**	**13.8.**
Companies	**C1**	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	1	1	1	1	2	2	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	1	1	1	1	1	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	1	1	1	1	1	1	2	1	1
	C8	1	1	1	1	1	1	1	1	2	1	1	1
	C9	2	2	1	1	1	2	2	1	1	2	2	1
	C10	1	1	1	1	1	1	2	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	1	1	1	1	1	1	1	1	1	1	1
	C18	1	1	1	2	2	1	1	1	1	1	1	1
	C19	1	1	1	1	1	1	1	2	1	1	1	1
	C20	1	1	1	1	1	1	1	1	1	1	1	1
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	2	1	2	2	1	1
	C23	1	1	2	2	2	2	2	1	2	2	1	1
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	2	1	1	1	1	1	1	1	1	1	1	1
	C27	1	1	1	1	1	1	1	1	1	1	1	1
	C28	1	1	1	1	1	1	1	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	1	1	1	2	1	1	1	1	1	1	1	1
	C31	1	1	1	1	1	2	1	1	1	1	1	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		14.1.	14.2.	14.3.	14.4.	14.5.	14.6.	14.7.	14.8.	14.9.	14.10.	14.11.	14.12.
Companies	C1	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	1	1	1	1	1	1	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	1	1	1	1	1	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	1	1	1	1	1	1	1	1	1
	C8	1	1	1	1	1	1	1	1	1	1	1	1
	C9	1	1	1	1	1	2	1	2	1	1	1	1
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	1	1	1	1	1	1	1	1	1	1	1
	C18	1	1	1	1	1	1	1	1	1	1	1	1
	C19	2	1	1	1	1	1	1	1	2	1	1	1
	C20	1	1	1	1	2	1	1	1	1	1	1	1
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	2	1	1	1
	C23	1	1	1	1	1	1	1	1	1	1	1	1
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	1	1	1	1	1	1	1	2	1	2	2	1
	C27	1	1	1	1	1	1	1	1	1	1	1	1
	C28	1	1	1	1	1	1	1	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	1	1	1	1	1	1	1	1	1	1	1	1
	C31	1	1	1	1	2	1	1	1	1	1	1	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		14.13.	**14.15.**	**15.1.**	**15.2.**	**15.3.**	**15.4.**	**16.1.**	**16.2.**	**16.4.**	**17.1.**	**17.4.**	**18.1.**
Companies	**C1**	1	1	1	1	1	1	1	1	1	1	1	1
	C2	1	1	1	1	1	1	1	1	1	1	1	1
	C3	1	1	1	1	1	1	1	1	1	1	1	1
	C4	1	1	1	1	1	1	1	1	1	1	1	1
	C5	1	1	1	1	1	1	1	1	1	1	1	1
	C6	1	1	1	1	1	1	1	1	1	1	1	1
	C7	1	1	1	1	1	1	1	1	1	1	1	1
	C8	1	1	1	1	1	1	1	1	1	1	1	1
	C9	1	1	1	1	1	1	2	2	1	1	1	1
	C10	1	1	1	1	1	1	1	1	1	1	1	1
	C11	1	1	1	1	1	1	1	1	1	1	1	1
	C12	1	1	1	1	1	1	1	1	1	1	1	1
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	1	1	1	1	1	1	1	1	1	1	1	1
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	1	1	1	1	2	2	1	1	1	1	1
	C18	1	1	1	1	1	1	1	1	1	1	2	1
	C19	1	1	1	1	1	1	2	2	1	2	1	1
	C20	1	1	1	1	1	1	1	1	1	1	1	1
	C21	1	1	1	1	1	1	1	1	1	1	1	1
	C22	1	1	1	1	1	1	1	1	1	1	1	1
	C23	1	1	1	1	1	1	1	1	1	1	1	1
	C24	1	1	1	1	1	1	1	1	1	1	1	1
	C25	1	1	1	1	1	1	1	1	1	1	1	1
	C26	1	1	1	1	1	1	1	1	1	1	1	1
	C27	1	1	1	1	1	1	1	1	1	1	1	1
	C28	1	1	1	1	1	1	2	1	1	1	1	1
	C29	1	1	1	1	1	1	1	1	1	1	1	1
	C30	1	1	1	1	1	1	1	1	1	1	1	1
	C31	1	1	2	1	1	1	1	1	1	1	2	1

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.3 Existence of clauses (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		18.2.	**18.3.**	**18.4.**	**19.1.**	**19.3.**	**19.4.**	**19.5.**	**19.6.**	**20.1.**	**21.3**	**21.8**	
Companies	**C1**	1	1	1	1	1	1	1	1	1	1	1	
	C2	1	1	1	1	1	1	1	1	1	1	1	
	C3	1	1	1	1	1	1	1	1	1	1	1	
	C4	1	1	1	1	1	1	1	1	1	1	1	
	C5	1	1	1	1	1	1	1	2	1	1	1	
	C6	1	1	1	1	1	1	1	1	1	2	1	
	C7	1	1	1	1	1	1	1	1	1	.	.	
	C8	1	1	1	1	1	1	1	2	1	2	2	
	C9	1	1	1	1	1	1	2	2	1	1	1	
	C10	1	1	1	1	1	1	1	1	1	1	1	
	C11	1	1	1	1	1	1	1	1	1	1	2	
	C12	1	1	1	1	1	1	1	1	1	1	1	
	C13	.	.	.	.	.	.	.	.	.	1	1	
	C14	1	1	1	1	1	1	1	1	1	1	1	
	C15	1	1	1	1	1	1	1	1	1	1	1	
	C16	1	1	1	1	1	1	1	1	1	2	1	
	C17	1	1	1	1	1	1	1	1	1	1	1	
	C18	1	1	1	1	1	1	1	1	1	1	2	
	C19	1	1	1	1	1	1	1	2	1	2	1	
	C20	1	1	1	1	1	1	1	1	1	1	1	
	C21	1	1	1	1	1	1	1	1	1	1	1	
	C22	1	1	1	1	1	1	1	1	1	.	.	
	C23	1	1	1	1	1	1	2	1	1	1	1	
	C24	1	1	1	1	1	1	1	1	1	.	.	
	C25	1	1	1	1	1	1	1	1	1	1	1	
	C26	1	1	1	1	2	1	2	1	1	1	1	
	C27	1	1	1	1	1	1	1	1	1	1	1	
	C28	1	1	1	1	2	1	2	1	1	1	1	
	C29	1	1	1	1	1	1	1	1	1	1	1	
	C30	2	1	1	1	2	1	2	1	1	1	1	
	C31	1	1	1	1	2	2	2	2	2	1	1	

(1= it exists in contracts, 2= it does not exist in contracts)

Table F.4 Existence of problems (Question 2.5)

		Clause Numbers as defined in Table C.2											
		1.9.	**2.4**	**3.3.**	**3.5.**	**4.2.**	**4.9.**	**4.10.**	**4.11.**	**4.12.**	**4.17.**	**4.19.**	**5.3.**
Companies	**C1**	1	1	2	1	2	2	2	2	2	2	2	2
	C2	1	1	2	1	2	1	2	1	1	2	2	2
	C3	1	1	2	2	2	2	1	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	2
	C10	1	1	2	1	2	2	2	1	1	2	2	2
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	1	2	2	2	2	2	2	2	2	2
	C16	2	1	1	1	2	1	1	1	1	2	2	2
	C17	1	2	2	2	1	2	2	2	2	2	2	2
	C18	1	1	1	1	1	1	1	1	1	1	1	2
	C19	2	2	2	2	2	2	2	2	2	2	2	1
	C20	1	1	2	2	2	2	2	1	2	2	2	2
	C21	2	2	1	2	2	2	2	2	2	2	1	2
	C22	1	2	1	2	2	2	2	1	1	2	1	2
	C23	1	1	2	2	1	2	2	2	2	2	2	2
	C24	2	2	1	2	2	2	2	2	1	2	2	2
	C25	1	2	1	1	2	2	1	1	1	1	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	1	1	2	1	2	1	2	2	1	2	2	2
	C28	2	1	1	1	1	2	1	2	1	2	2	2
	C29	2	1	2	2	2	2	1	2	2	2	2	2
	C30	2	2	2	2	2	2	2	2	2	2	2	2
	C31	2	1	1	1	2	2	1	1	1	2	1	2

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

		Clause Numbers as defined in Table C.2											
		5.4.	**6.2.**	**6.4.**	**6.5.**	**6.10.**	**7.4.**	**7.5.**	**7.6.**	**7.7.**	**7.8.**	**8.1.**	**8.2.**
Companies	**C1**	2	2	2	2	2	2	2	2	2	1	2	2
	C2	2	2	2	2	2	2	1	2	2	2	2	2
	C3	2	2	2	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	2
	C10	2	2	2	2	2	2	2	2	2	2	2	1
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	2	1	1	1	1	2	2	2	2	2	1	2
	C17	2	2	2	2	2	2	2	2	2	2	2	2
	C18	2	1	1	1	2	1	2	1	1	1	1	1
	C19	1	2	2	2	2	2	2	2	2	2	2	2
	C20	2	2	2	2	2	2	2	2	2	1	1	1
	C21	1	2	2	2	2	2	2	2	2	2	2	1
	C22	2	2	2	1	2	2	2	2	2	2	1	1
	C23	2	1	1	1	2	2	1	1	1	2	1	1
	C24	2	2	2	2	2	2	2	2	2	2	2	2
	C25	2	2	2	2	2	2	2	1	2	2	2	1
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	2	2	2	2	2	2	2	2	2	2	1	1
	C28	2	2	2	2	2	2	2	2	2	2	1	1
	C29	2	2	2	2	2	2	2	2	2	2	2	2
	C30	2	2	2	2	2	2	2	2	2	1	2	2
	C31	2	2	2	2	2	2	1	2	2	2	2	2

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		8.3.	**8.4.**	**8.5.**	**8.6.**	**8.7.**	**8.8.**	**8.9.**	**8.10.**	**8.11.**	**8.12.**	**9.1.**	**9.2.**
Companies	**C1**	2	1	1	2	1	1	1	1	2	2	2	2
	C2	2	1	1	1	1	2	1	1	1	1	2	2
	C3	2	2	2	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	2
	C10	1	1	1	1	1	1	1	1	1	1	2	2
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	2	2	2	2	2	2	2	2	2	2	2	1
	C17	2	1	1	2	2	2	2	2	2	2	2	2
	C18	2	1	1	2	1	1	1	1	1	1	2	2
	C19	2	2	2	2	2	2	2	2	2	2	2	2
	C20	2	1	1	2	1	2	1	1	2	2	2	2
	C21	2	2	2	1	1	2	2	2	2	2	2	2
	C22	1	1	1	1	1	1	1	1	1	1	2	1
	C23	1	1	1	1	1	1	1	1	1	1	2	1
	C24	2	2	2	2	2	2	2	2	2	2	2	2
	C25	2	1	2	1	1	2	2	2	2	2	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	1	1	1	1	1	2	1	1	2	2	2	2
	C28	1	1	2	2	2	1	1	1	1	1	2	2
	C29	2	2	2	2	2	1	1	1	1	1	2	2
	C30	2	1	1	2	1	1	1	2	2	2	2	2
	C31	2	1	1	1	1	2	1	2	1	1	1	1

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

		Clause Numbers as defined in Table C.2											
		9.3.	**9.4.**	**10.1.**	**10.2.**	**10.3.**	**11.1.**	**11.2.**	**11.3.**	**11.4.**	**11.5.**	**11.6.**	**11.8.**
Companies	**C1**	2	2	2	2	2	2	2	2	2	2	2	2
	C2	1	1	2	1	2	2	2	1	1	2	1	2
	C3	2	2	2	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	2
	C10	2	2	1	1	1	2	1	2	1	1	1	2
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	1	1	2	2	2	1	1	1	1	1	1	1
	C17	2	2	2	2	2	2	2	2	2	2	2	2
	C18	2	2	2	2	1	1	1	2	1	2	2	1
	C19	2	2	2	2	2	2	2	2	2	2	2	2
	C20	2	1	1	1	2	2	1	1	2	2	2	2
	C21	2	2	1	2	2	2	2	2	2	1	2	2
	C22	1	1	1	1	1	1	1	1	1	1	1	2
	C23	1	1	1	1	1	2	2	1	2	2	2	2
	C24	2	2	2	2	2	2	2	2	2	2	2	2
	C25	2	2	2	2	2	2	2	2	2	2	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	2	2	1	1	1	2	2	2	2	2	2	2
	C28	2	2	2	2	2	2	1	1	2	1	2	2
	C29	2	2	2	2	2	1	2	1	1	2	2	2
	C30	2	2	2	2	2	2	2	2	2	2	2	2
	C31	1	1	1	1	2	1	1	1	1	1	2	2

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		11.9.	**11.10.**	**12.1.**	**12.2.**	**12.3.**	**12.4.**	**13.2.**	**13.4.**	**13.5.**	**13.6.**	**13.7.**	**13.8.**
Companies	**C1**	2	2	2	2	2	2	1	2	2	2	2	1
	C2	2	2	1	2	2	2	2	2	2	1	2	1
	C3	2	2	1	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	1
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	1
	C10	1	1	2	2	1	2	2	2	1	2	1	1
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	1	1	2	2	1	2	2	1	1	1	1
	C18	1	2	2	1	1	2	2	1	1	2	1	1
	C19	2	2	2	2	2	2	2	2	2	2	2	1
	C20	2	2	2	2	1	1	2	2	2	2	2	1
	C21	2	2	2	2	2	2	2	2	2	2	2	1
	C22	1	1	2	2	2	2	2	2	2	2	1	2
	C23	2	2	2	2	2	2	2	2	2	2	2	2
	C24	2	2	2	2	2	2	2	2	2	1	2	1
	C25	2	2	2	2	2	2	2	2	2	2	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	1	2	2	2	2	1	1	2	2	2	2	1
	C28	2	1	2	2	2	1	2	2	2	2	1	2
	C29	2	2	2	2	2	2	2	2	2	2	2	2
	C30	2	2	2	2	1	1	2	2	1	2	2	2
	C31	1	1	1	1	2	2	1	2	2	2	2	1

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		14.1.	14.2.	14.3.	14.4.	14.5.	14.6.	14.7.	14.8.	14.9.	14.10.	14.11.	14.12.
Companies	C1	2	2	2	2	2	2	2	2	2	2	2	2
	C2	2	1	1	2	2	1	1	1	1	2	2	1
	C3	2	2	2	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	.	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	2	2	2	2	2	2
	C10	2	2	2	2	2	2	1	1	1	2	2	1
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	2	2	2	2	2	2	1	2	2	2	1
	C18	2	2	2	2	2	2	2	2	2	1	1	1
	C19	2	2	2	2	2	2	2	1	2	2	2	2
	C20	2	2	2	2	2	2	2	1	1	2	2	1
	C21	2	2	2	2	2	2	2	1	2	2	2	2
	C22	2	2	2	1	2	2	1	1	1	2	2	2
	C23	2	2	2	2	2	2	2	2	2	2	2	1
	C24	2	2	2	2	2	2	2	2	2	2	2	2
	C25	2	2	2	2	2	2	2	2	2	2	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	2	2	2	2	2	2	1	1	2	2	2	2
	C28	2	2	2	1	2	2	2	2	1	1	2	2
	C29	2	2	2	2	2	2	2	2	2	2	2	2
	C30	2	2	2	2	2	2	2	2	2	2	2	2
	C31	2	1	1	1	2	1	1	1	1	2	2	1

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		14.13.	**14.15.**	**15.1.**	**15.2.**	**15.3.**	**15.4.**	**16.1.**	**16.2.**	**16.4.**	**17.1.**	**17.4.**	**18.1.**
Companies	**C1**	2	2	2	2	2	2	2	2	2	2	1	2
	C2	2	2	2	2	1	2	2	2	2	2	2	2
	C3	2	2	2	2	2	2	2	2	2	2	2	2
	C4	2	2	2	2	2	2	2	2	2	2	2	2
	C5	2	2	2	2	2	2	2	2	2	2	2	2
	C6	2	2	2	2	2	2	2	2	2	2	2	2
	C7	2	2	2	2	2	2	2	2	2	2	2	2
	C8	2	2	2	2	2	2	2	2	2	2	2	2
	C9	2	2	2	2	2	2	1	2	2	2	2	2
	C10	2	2	1	1	1	1	1	1	1	1	2	1
	C11	2	2	2	2	2	2	2	2	2	2	2	2
	C12	2	2	2	2	2	2	2	2	2	2	2	2
	C13	.	.	.	.	.	.	.	.	.	.	.	.
	C14	1	1	1	1	1	1	1	1	1	1	1	1
	C15	2	2	2	2	2	2	2	2	2	2	2	2
	C16	1	1	1	1	1	1	1	1	1	1	1	1
	C17	2	2	2	2	2	2	2	2	2	2	2	2
	C18	2	2	2	2	2	2	1	1	1	1	1	1
	C19	2	2	2	2	2	2	1	1	2	2	2	2
	C20	2	2	2	2	2	2	2	2	1	2	2	2
	C21	2	2	2	2	2	2	2	2	2	2	2	2
	C22	2	2	1	1	1	1	1	1	1	1	2	2
	C23	2	2	2	2	2	2	2	2	2	2	2	2
	C24	2	2	2	2	2	2	2	2	2	2	2	2
	C25	2	2	2	2	2	2	2	2	2	2	2	2
	C26	2	2	2	2	2	2	2	2	2	2	2	2
	C27	2	2	2	2	2	2	2	2	2	2	2	2
	C28	1	2	2	1	2	2	2	2	1	2	2	2
	C29	2	2	1	1	1	2	1	1	2	2	2	2
	C30	2	2	2	2	2	2	2	2	2	2	2	2
	C31	1	2	2	2	2	2	1	1	1	1	2	1

(1= it is a problem, 2= it is not a problem)

Table F.4 Existence of problems (Question 2.5) (continued)

Clause Numbers as defined in Table C.2													
		18.2.	**18.3.**	**18.4.**	**19.1.**	**19.3.**	**19.4.**	**19.5.**	**19.6.**	**20.1.**	**21.3.**	**21.8.**	
Companies	**C1**	2	2	2	2	2	2	2	2	2	2	2	
	C2	2	2	2	1	2	1	1	2	2	1	2	
	C3	2	2	2	2	2	2	2	2	2	1	1	
	C4	2	2	2	2	2	2	2	2	2	2	2	
	C5	2	2	2	2	2	2	2	2	2	2	1	
	C6	2	2	2	2	2	2	2	2	2	2	1	
	C7	2	2	2	2	2	2	2	2	2	.	.	
	C8	2	2	2	2	2	2	2	2	2	2	2	
	C9	2	2	2	2	2	2	2	2	2	2	2	
	C10	1	2	2	1	2	1	2	1	2	2	1	
	C11	2	2	2	2	2	2	2	2	2	2	1	
	C12	2	2	2	2	2	2	2	2	2	1	1	
	C13	.	.	.	1	.	.	.	.	.	2	2	
	C14	1	1	1	1	1	1	1	1	1	1	1	
	C15	2	2	2	2	2	2	2	2	2	2	1	
	C16	1	1	1	1	1	1	1	1	1	2	1	
	C17	2	2	2	2	2	2	2	2	2	1	2	
	C18	1	2	2	1	1	2	2	1	1	2	1	
	C19	2	2	2	2	2	2	2	1	2	1	2	
	C20	2	2	2	2	2	2	2	2	2	2	2	
	C21	2	2	2	2	2	2	2	2	2	2	1	
	C22	2	2	2	2	2	2	2	2	2	.	.	
	C23	2	2	2	2	2	2	2	2	2	1	2	
	C24	2	2	2	2	2	2	2	2	2	.	.	
	C25	2	2	2	2	2	2	2	2	2	2	2	
	C26	2	2	2	2	2	2	2	2	2	2	2	
	C27	2	2	2	2	2	2	2	2	2	2	2	
	C28	2	2	2	2	2	2	2	2	1	2	2	
	C29	2	2	2	2	2	2	2	2	2	2	1	
	C30	2	2	2	1	2	2	2	2	2	2	1	
	C31	1	2	2	1	2	1	1	1	1	2	1	

(1= it is a problem, 2= it is not a problem)

APPENDIX G

CROSS-TABULATIONS

Chi-square test, which is used to understand the relationship between the variables, was carried out to test the hypotheses. These tests were carried out with the help of SPSS for Windows®. For the reliability of chi-square tests, the cells having expected count less than 5, should not be more than 20% of all cells. In case, for example, in a table having dimension of 5x2, the number of cells having expected count less than five should not be more than two. In 2x2 dimensional table, the hypothesis is tested taking into account "Pearson Chi-Square" value. However, in case there are cells having expected count less than 5, the 'Fisher Exact Test' value is taken into consideration. In such case, if the 'Exact Sig. 2 Sided' value is less than 0.05, there is relationship between the variables and the null hypothesis is rejected. In order to investigate the effect of one variable on the other, the odds ratio was calculated for the chi-square tests having the p significant value less than 0.05. These calculations were done via SPSS for Windows®.

For example, the chi-square test between '10.1 Taking over of the works and sections' (Question 2.5) and 'existence of unclear contract clause or unavailability of contract clause in the contract' in YIATS (Question 2.7) was carried out in the same way. As there were cells having expected frequency less than 5, the 'Fisher Exact Test' value was taken into consideration. P value, which was value of 'Exact Sig. (2 sided)', was 0.039. As P significant value was less than 0.05, the null hypothesis was rejected. However, due to the low response rate, 50% of cells had expected count

less than five. As the null hypothesis was rejected as a result of chi-square test, this revealed that there was relationship between variables. In order to calculate the effect of '10.1 Taking over of the works and sections' (Question 2.5) on 'existence of unclear contract clause or unavailability of contract clause in the contract' in YIATS (Question 2.7), risk estimation was calculated via SPSS software for Windows®. As a result, this risk estimation revealed that in case there is a problem in taking over of the works and sections and if there is fuzziness in clause or absence of relevant clause in YIATS at the same time, the risk of the contractor to experience the consequences of this situation adversely increases 10.111 times due to this fuzziness in the clause or absence of the relevant clause.

Hypothesis 1: (related clauses in Question 2.5)

H_0: Existence or absence of relevant clauses in contracts makes no difference to the exposure of the contractor to the consequences of financial, temporal and compliance problems.

Cross-tabulations for Hypothesis 1:

Cross-tabulation for 3.5 Determination versus 3.5_Determination

3.5 Determination * 3.5_Determination Crosstabulation

			3.5_Determination		
			there is problem	there is no problem	Total
3.5 Determination	it exists in the contract	Count	10	11	21
		% within 3.5 Determination	47.6%	52.4%	100.0%
	it does not exist in the contract	Count	0	9	9
		% within 3.5 Determination	.0%	100.0%	100.0%
Total		Count	10	20	30
		% within 3.5 Determination	33.3%	66.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.429[b]	1	.011		
Continuity Correction[a]	4.464	1	.035		
Likelihood Ratio	9.126	1	.003		
Fisher's Exact Test				.013	.012
Linear-by-Linear Association	6.214	1	.013		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

Cross-tabulation for 4.10 Site Data versus 4.10_Site Data

4.10 Site Data * 4.10_Site Data Crosstabulation

			4.10_SiteData		
			there is problem	there is no problem	Total
4.10 Site Data	it exists in the contract	Count	5	22	27
		% within 4.10 Site Data	18.5%	81.5%	100.0%
	it does not exist in the contract	Count	3	0	3
		% within 4.10 Site Data	100.0%	.0%	100.0%
Total		Count	8	22	30
		% within 4.10 Site Data	26.7%	73.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	9.167[b]	1	.002		
Continuity Correction[a]	5.473	1	.019		
Likelihood Ratio	8.920	1	.003		
Fisher's Exact Test				.014	.014
Linear-by-Linear Association	8.861	1	.003		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .80.

Hypothesis 2: (Questions 2.7 and 2.8 versus related clauses in Question 2.5)

H_0: Problems about receiving payments, fuzzy clauses, default by both parties, default by owner, default by contractor and specifications encountered in FIDIC or YIATS contracts are not related to the main problem areas *i.e.* financial, temporal and compliance issues.

Cross-tabulations for Hypothesis 2:

Cross-tabulation for payment receiving problem in YIATS versus 2.4_Owner's financial arrangements

Payment receving problem in YIATS * 2.4_Owner's Financial Arrangements Crosstabulation

			2.4_Owner's financial arrangements		
			there is problem	there is no problem	Total
Payment receiving problem in YIATS	Yes	Count	9	5	14
		% within Payment taking problem in YIATS	64.3%	35.7%	100.0%
	No	Count	4	12	16
		% within Payment taking problem in YIATS	25.0%	75.0%	100.0%
Total		Count	13	17	30
		% within Payment taking problem in YIATS	43.3%	56.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.693[b]	1	.030		
Continuity Correction[a]	3.229	1	.072		
Likelihood Ratio	4.810	1	.028		
Fisher's Exact Test				.063	.035
Linear-by-Linear Association	4.537	1	.033		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6. 07.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 2.4_ Owner's financial arrangements (there is problem / there is no problem)	5,400	1,120	26,044
For cohort Problems in YIATS payment = Yes	2,354	1,036	5,348
For cohort Problems in YIATS payment = No	,436	,182	1,042
N of Valid Cases	30		

Cross-tabulation for payment receiving problem in YIATS versus 7.5_Rejection

Crosstab

			Problems in YIATS payment		
			Yes	No	Total
7.5_ Rejection	there is problem	Count	4		4
		% within 7.5_Rejection	100,0%		100,0%
	there is no problem	Count	10	16	26
		% within 7.5_Rejection	38,5%	61,5%	100,0%
Total		Count	14	16	30
		% within 7.5_Rejection	46,7%	53,3%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,275[b]	1	,022		
Continuity Correction[a]	3,092	1	,079		
Likelihood Ratio	6,809	1	,009		
Fisher's Exact Test				,037	,037
Linear-by-Linear Association	5,099	1	,024		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,87.

Cross-tabulation for payment receiving problem in YIATS versus 8.9_Consequences of suspension

Crosstab

			8.9_Consequences of suspension		
			there is problem	there is no problem	Total
Payment receiving problem in YIATS	Yes	Count	8	6	14
		% within Payment receiving problem in YIATS	57.1%	42.9%	100.0%
	No	Count	4	12	16
		% within Payment receiving problem in YIATS	25.0%	75.0%	100.0%
Total		Count	12	18	30
		% within Payment receiving problem in YIATS	40.0%	60.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.214[b]	1	.073		
Continuity Correction[a]	2.015	1	.156		
Likelihood Ratio	3.265	1	.071		
Fisher's Exact Test				.135	.078
Linear-by-Linear Association	3.107	1	.078		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5. 60.

Cross-tabulation for payment receiving problem in YIATS versus 8.10_Payment for plant and materials in event of suspension

Crosstab

			8.10_Payment for plant and materials in event of suspension		
			there is problem	there is no problem	Total
Receiving payment problem in YIATS	Yes	Count	8	6	14
		% within Payment receiving problem in YIATS	57.1%	42.9%	100.0%
	No	Count	4	12	16
		% within Payment receiving problem in YIATS	25.0%	75.0%	100.0%
Total		Count	12	18	30
		% within Payment receiving problem in YIATS	40.0%	60.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.214[b]	1	.073		
Continuity Correction[a]	2.015	1	.156		
Likelihood Ratio	3.265	1	.071		
Fisher's Exact Test				.135	.078
Linear-by-Linear Association	3.107	1	.078		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5. 60.

Cross-tabulation for payment receiving problem in YIATS versus 21.8_Design error

Crosstab

			21.8_Design error		
			there is problem	there is no problem	Total
Payment receiving problem in YIATS	Yes	Count	8	6	14
		% within Payment receiving problem in YIATS	57.1%	42.9%	100.0%
	No	Count	6	8	14
		% within Payment receiving problem in YIATS	42.9%	57.1%	100.0%
Total		Count	14	14	28
		% within Payment receiving problem in YIATS	50.0%	50.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.571 [b]	1	.450		
Continuity Correction [a]	.143	1	.705		
Likelihood Ratio	.573	1	.449		
Fisher's Exact Test				.706	.353
Linear-by-Linear Association	.551	1	.458		
N of Valid Cases	28				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.00.

Cross-tabulation for 'existence of unclear contract clauses or unavailability of contract clause in the contract' problem in YIATS versus 10.1_Taking over of the works and sections

Crosstab

			Problems in YIATS fuzziness		
			Yes	No	Total
10.1_Taking over of the works and sections	there is problem	Count	7	1	8
		% within 10.1_Taking over of the works and sections	87,5%	12,5%	100,0%
	there is no problem	Count	9	13	22
		% within 10.1_Taking over of the works and sections	40,9%	59,1%	100,0%
Total		Count	16	14	30
		% within 10.1_Taking over of the works and sections	53,3%	46,7%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,117[b]	1	,024		
Continuity Correction[a]	3,416	1	,065		
Likelihood Ratio	5,660	1	,017		
Fisher's Exact Test				,039	,030
Linear-by-Linear Association	4,946	1	,026		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,73.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 10.1_ Taking over of the works and sections (there is problem / there is no problem)	10,111	1,054	97,002
For cohort Problems in PPC unclea = Yes	2,139	1,214	3,769
For cohort Problems in PPC unclea = No	,212	,033	1,367
N of Valid Cases	30		

Cross-tabulation for 'default by the parties' problem in YIATS versus 8.2_Time for Completion

Crosstab

			Problems in YIATS default by the parties		
			Yes	No	Total
8.2_Time for Completion	there is problem	Count	4	7	11
		% within 8.2_Time for Completion	36,4%	63,6%	100,0%
	there is no problem	Count	1	18	19
		% within 8.2_Time for Completion	5,3%	94,7%	100,0%
Total		Count	5	25	30
		% within 8.2_Time for Completion	16,7%	83,3%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4,852[b]	1	,028		
Continuity Correction[a]	2,871	1	,090		
Likelihood Ratio	4,778	1	,029		
Fisher's Exact Test				,047	,047
Linear-by-Linear Association	4,690	1	,030		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,83.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 8.4_ Time for completion (there is problem / there is no problem)	10,286	,972	108,807
For cohort Problems in YIATS default by parties = Yes	6,909	,879	54,298
For cohort Problems in YIATS default by parties = No	,672	,424	1,063
N of Valid Cases	30		

Cross-tabulation for 'default by owner' problem in YIATS versus 14.12_Discharge

Crosstab

			Problems in YIATS Default by owner		
			Yes	No	Total
14.12_Default by owner	there is problem	Count	1	8	9
		% within 14.12_Default by owner	11,1%	88,9%	100,0%
	there is no problem	Count	12	9	21
		% within 14.12_Default by owner	57,1%	42,9%	100,0%
Total		Count	13	17	30
		% within 14.12_Default by owner	43,3%	56,7%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,436[b]	1	,020		
Continuity Correction[a]	3,723	1	,054		
Likelihood Ratio	6,093	1	,014		
Fisher's Exact Test				,042	,024
Linear-by-Linear Association	5,255	1	,022		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 3,90.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 14.12_ Discharge (there is problem / there is no problem)	,094	,010	,891
For cohort Problems in YIATS default by owner = Yes	,194	,030	1,280
For cohort Problems in YIATS default by owner = No	2,074	1,202	3,578
N of Valid Cases	30		

Cross-tabulation for Payment receiving problem in FIDIC versus 2.1.8_Design error

Payment receiving problem in FIDIC * 21.8_Design error Crosstabulation

			21.8_Design error		
			there is problem	there is no problem	Total
Payment receiving problem in FIDIC	Yes	Count	8	6	14
		% within Payment receiving problem in FIDIC	57.1%	42.9%	100.0%
	No	Count	6	8	14
		% within Payment receiving problem in FIDIC	42.9%	57.1%	100.0%
Total		Count	14	14	28
		% within Payment receiving problem in FIDIC	50.0%	50.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.571 [b]	1	.450		
Continuity Correction [a]	.143	1	.705		
Likelihood Ratio	.573	1	.449		
Fisher's Exact Test				.706	.353
Linear-by-Linear Association	.551	1	.458		
N of Valid Cases	28				

a. Computed only for a 2x2 table

b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7. 00.

Cross-tabulation for Payment receiving problem in FIDIC versus 7.5_Rejection

Crosstab

			Problems in FIDIC payment		
			Yes	No	Total
7.5_ Rejection	there is problem	Count	4		4
		% within 7.5_Rejection	100,0%		100,0%
	there is no problem	Count	10	16	26
		% within 7.5_Rejection	38,5%	61,5%	100,0%
Total		Count	14	16	30
		% within 7.5_Rejection	46,7%	53,3%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,275 [b]	1	,022		
Continuity Correction [a]	3,092	1	,079		
Likelihood Ratio	6,809	1	,009		
Fisher's Exact Test				,037	,037
Linear-by-Linear Association	5,099	1	,024		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 1,87.

Cross-tabulation for Payment receiving problem in FIDIC * 9.4_Failure to Pass Tests on Completion

Crosstab

			Problems in FIDIC payment		
			Yes	No	Total
9.4_Failure to Pass Tests on Completion	there is problem	Count	6	1	7
		% within 9.4_Failure to pass tests on completion	85,7%	14,3%	100,0%
	there is no problem	Count	8	15	23
		% within 9.4_Failure to pass tests on completion	34,8%	65,2%	100,0%
Total		Count	14	16	30
		% within 9.4_Failure to pass tests on completion	46,7%	53,3%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,593[b]	1	,018		
Continuity Correction[a]	3,734	1	,053		
Likelihood Ratio	5,994	1	,014		
Fisher's Exact Test				,031	,025
Linear-by-Linear Association	5,407	1	,020		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 2 cells (50,0%) have expected count less than 5. The minimum expected count is 3,27.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 9.4_Failure to pass tests on completion (there is problem / there is no problem)	11,250	1,146	110,461
For cohort Problems in FIDIC payment = Yes	2,464	1,304	4,655
For cohort Problems in FIDIC payment = No	,219	,035	1,378
N of Valid Cases	30		

Cross-tabulation for Default by parties problem in FIDIC versus 15.3_Valuation at date of termination

Crosstab

			Problems in FIDIC default		
			Yes	No	Total
15.3_Valuation at date of termination	there is problem	Count	4	3	7
		% within 15.3_Valuation at date of termination	57,1%	42,9%	100,0%
	there is no problem	Count	3	20	23
		% within 15.3_Valuation at date of termination	13,0%	87,0%	100,0%
Total		Count	7	23	30
		% within 15.3_Valuation at date of termination	23,3%	76,7%	100,0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5,834[b]	1	,016		
Continuity Correction[a]	3,629	1	,057		
Likelihood Ratio	5,224	1	,022		
Fisher's Exact Test				,033	,033
Linear-by-Linear Association	5,640	1	,018		
N of Valid Cases	30				

a. Computed only for a 2x2 table

b. 1 cells (25,0%) have expected count less than 5. The minimum expected count is 1,63.

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for 15.3_ Valuation at date of termination There is problem / there is no problem	8,889	1,294	61,058
For cohort Problems in FIDIC default = Yes	4,381	1,274	15,062
For cohort Problems in FIDIC default = No	,493	,206	1,176
N of Valid Cases	30		

Hypothesis 3: (Questions 2.3 versus relevant clauses in Question 2.5)

H_0: Problems related to financial, temporal and compliance issues are not affected by the choice of cost determination method of a contract.

Cross-tabulations for Hypothesis 3:

Cross-tabulation for cost guaranteed maximum ceiling versus 21.4_Technical standards and regulations

Crosstab

			21.4_Technical standards and regulations		
			there is problem	there is no problem	Total
cost+guaranteed maximum ceiling	the least used	Count	3	18	21
		% within cost+guaranteed maximum ceiling	14.3%	85.7%	100.0%
	less used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	used	Count	2	0	2
		% within cost+guaranteed maximum ceiling	100.0%	.0%	100.0%
	more used	Count	0	1	1
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	the most used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
Total		Count	5	23	28
		% within cost+guaranteed maximum ceiling	17.9%	82.1%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.470[a]	4	.033
Likelihood Ratio	9.051	4	.060
Linear-by-Linear Association	.150	1	.698
N of Valid Cases	28		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .18.

Cross-tabulation for cost + guaranteed maximum ceiling versus 5.3_Payments to nominated subcontractors

Crosstab

			5.3_Payments to nominated subcontractors		
			there is problem	there is no problem	Total
cost+guaranteed maximum ceiling	the least used	Count	0	23	23
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	less used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	used	Count	2	0	2
		% within cost+guaranteed maximum ceiling	100.0%	.0%	100.0%
	more used	Count	0	1	1
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	the most used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
Total		Count	2	28	30
		% within cost+guaranteed maximum ceiling	6.7%	93.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.000[a]	4	.000
Likelihood Ratio	14.696	4	.005
Linear-by-Linear Association	3.086	1	.079
N of Valid Cases	30		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .07.

Cross-tabulation for cost + guaranteed maximum ceiling versus 5.4_Evidence of payments

Crosstab

			5.4_Evidence of payments		
			there is problem	there is no problem	Total
cost+guaranteed maximum ceiling	the least used	Count	0	23	23
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	less used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	used	Count	2	0	2
		% within cost+guaranteed maximum ceiling	100.0%	.0%	100.0%
	more used	Count	0	1	1
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
	the most used	Count	1	1	2
		% within cost+guaranteed maximum ceiling	50.0%	50.0%	100.0%
Total		Count	3	27	30
		% within cost+guaranteed maximum ceiling	10.0%	90.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.444[a]	4	.000
Likelihood Ratio	16.732	4	.002
Linear-by-Linear Association	10.305	1	.001
N of Valid Cases	30		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .10.

Cross-tabulation for cost + guaranteed maximum ceiling versus 13.2_Value engineering

Crosstab

			13.2_Value engineering		
			there is problem	there is no problem	Total
cost+guaranteed maximum ceiling	the least used	Count	2	21	23
		% within cost+guaranteed maximum ceiling	8.7%	91.3%	100.0%
	less used	Count	1	1	2
		% within cost+guaranteed maximum ceiling	50.0%	50.0%	100.0%
	used	Count	1	1	2
		% within cost+guaranteed maximum ceiling	50.0%	50.0%	100.0%
	more used	Count	1	0	1
		% within cost+guaranteed maximum ceiling	100.0%	.0%	100.0%
	the most used	Count	0	2	2
		% within cost+guaranteed maximum ceiling	.0%	100.0%	100.0%
Total		Count	5	25	30
		% within cost+guaranteed maximum ceiling	16.7%	83.3%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.652[a]	4	.047
Likelihood Ratio	7.898	4	.095
Linear-by-Linear Association	1.687	1	.194
N of Valid Cases	30		

a. 9 cells (90.0%) have expected count less than 5. The minimum expected count is .17.

Cross-tabulation for Lump sum versus 1.9_Delayed drawings or instructions

Crosstab

			1.9_Delayed drawings or instructions		
			there is problem	there is no problem	Total
Lumpsum	the least used	Count	0	7	7
		% within Lumpsum	.0%	100.0%	100.0%
	used	Count	0	2	2
		% within Lumpsum	.0%	100.0%	100.0%
	more used	Count	4	3	7
		% within Lumpsum	57.1%	42.9%	100.0%
	the most used	Count	8	6	14
		% within Lumpsum	57.1%	42.9%	100.0%
Total		Count	12	18	30
		% within Lumpsum	40.0%	60.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.571[a]	3	.036
Likelihood Ratio	11.699	3	.008
Linear-by-Linear Association	7.103	1	.008
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .80.

Cross-tabulation for Lump sum versus 8.4_Extension of time for completion

Crosstab

			8.4_Extension of time for completion		
			there is problem	there is no problem	Total
Lumpsum	the least used	Count	1	6	7
		% within Lumpsum	14.3%	85.7%	100.0%
	used	Count	0	2	2
		% within Lumpsum	.0%	100.0%	100.0%
	more used	Count	4	3	7
		% within Lumpsum	57.1%	42.9%	100.0%
	the most used	Count	8	6	14
		% within Lumpsum	57.1%	42.9%	100.0%
Total		Count	13	17	30
		% within Lumpsum	43.3%	56.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.566[a]	3	.135
Likelihood Ratio	6.630	3	.085
Linear-by-Linear Association	4.087	1	.043
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .87.

Cross-tabulation for Lump sum versus 13.8_Adjustment for changes in cost

Crosstab

			13.8_Adjustment for changes in cost		
			there is problem	there is no problem	Total
Lumpsum	the least used	Count	4	3	7
		% within Lumpsum	57.1%	42.9%	100.0%
	used	Count	1	1	2
		% within Lumpsum	50.0%	50.0%	100.0%
	more used	Count	2	5	7
		% within Lumpsum	28.6%	71.4%	100.0%
	the most used	Count	8	6	14
		% within Lumpsum	57.1%	42.9%	100.0%
Total		Count	15	15	30
		% within Lumpsum	50.0%	50.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.714[a]	3	.634
Likelihood Ratio	1.758	3	.624
Linear-by-Linear Association	.013	1	.910
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is 1.00.

Cross-tabulation for Lump sum versus 2.4_Owner's financial arrangements

Crosstab

			2.4_Owner's financial arrangements		
			there is problem	there is no problem	Total
Lumpsum	the least used	Count	1	6	7
		% within Lumpsum	14.3%	85.7%	100.0%
	used	Count	0	2	2
		% within Lumpsum	.0%	100.0%	100.0%
	more used	Count	3	4	7
		% within Lumpsum	42.9%	57.1%	100.0%
	the most used	Count	9	5	14
		% within Lumpsum	64.3%	35.7%	100.0%
Total		Count	13	17	30
		% within Lumpsum	43.3%	56.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.438[a]	3	.092
Likelihood Ratio	7.502	3	.057
Linear-by-Linear Association	5.057	1	.025
N of Valid Cases	30		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .87.

CURRICULUM VITAE

PERSONEL INFORMATION

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EDUCATION

Degree	Institution	Year of Graduation
MBA	ITU Business Administration	2003
MS	ITU Building Science	2003
BS	ITU Architecture	2001
High School	Cağaloğlu Anadolu High School, Ist.	1997

WORK EXPERIENCE

Year	Place	Enrollment
2005	Yaşar University	Lecturer
2004	Cyprus International University	Lecturer

FOREIGN LANGUAGES

Advanced English, German, French, Intermediate Italian and Spanish, Basic Japan

PUBLICATIONS

1. Sertyeşilışık, B. Effects of Well-Prepared Contracts on the Success of the Companies, The 1st. International CIB Endorsed METU Postgraduate Conference on Built Environment and Information Technologies, (2006)

2. Sertyeşilışık, B. The Affects of the User Profile on Urbanization, 18th International Building and Life Congress, (2006)

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5. Sertyeşilışık, B. The Role of the Construction in development of Turkey, CIB Conference in Rome (2006)

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