

A CONSCIENTIOUS APPROACH TO CLAIMS MANAGEMENT STRATEGIES  
IN INTERNATIONAL PROJECTS USING FIDIC BASED CONTRACTS

by

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## **ABSTRACT**

### **A CONSCIENTIOUS APPROACH TO CLAIMS MANAGEMENT STRATEGIES USING FIDIC BASED CONTRACTS IN INTERNATIONAL PROJECTS**

The management of construction claims is the greatest challenge that is facing contractors in today's competitive business environment. Construction projects are becoming increasingly susceptible to a variety of factors that give rise to time extensions and cost recovery. Although the construction business environment has moved toward partnering arrangements in recent years, the number of contractual difficulties continues to rise. Thus the construction industry needs to develop methodologies for construction claim management to better manage the on going trend.

Realizing the importance of this need, this study aims to provide an overview for construction claims management. The thesis opens with a discussion on whether the discords can be solved as potential change orders before escalating into major problems and becoming claims. Then, accepting the fact that changes take place in every project, in order to understand the nature of claims before dealing with them, the clauses that trigger claims in FIDIC's Fourth Edition (or General Conditions of Contract for Civil Engineering Works) are investigated. Ten major clauses are chosen to consider the more significant problems experienced by contractors. Different views are presented in order to give the reader an essence of what the basis of the claim for the chosen clause is. The validity of these commentaries is then tested using real time case studies.

The last section of the study provides the fundamentals for claims management. The records to be kept at different stages of the project are described and the important points to be considered during the preparation of a well documented claim are provided.

## ÖZET

### **FIDIC TABANLI ULUSLARARASI PROJELERDE İHTİLAFLARIN YÖNETİM STRATEJİLERİNE BİLİNÇLİ BİR YAKLAŞIM**

Günümüzün zorlu iş koşullarında, müteahhitlerin karşılaştığı en önemli güçlük ihtilaf yönetiminin doğru bir şekilde gerçekleştirilmesidir. Son yıllarda, inşaat projeleri, artan bir hızla süre uzatımları ve ilave ödemelere sebep olan birçok faktöre duyarlı hale gelmiştir. İnşaat projelerinde ortaklıklar kurmaya yönelik atılımlar olmuş olsa da, sözleşmeden kaynaklanan güçlüklerin sayısı sürekli artmaktadır ve bu güçlüklerin üstesinden gelebilmek için inşaat sektörünün var olan sistemi düzeltmek için ihtilafların yönetimiyle ilgili metotlar geliştirmesi gerekmektedir.

Bu çalışmanın amacı, mevcut ihtiyacın farkına vararak ihtilafların yönetimi için bir sistem oluşturmaktır. Bu doğrultuda, öncelikle anlaşmazlıkların ihtilaflara gidecek daha büyük problemler haline gelmeden çözülüp çözülemeyeceği üzerine bir değerlendirme yapılmıştır. Daha sonra, değişikliklerin her projede yaşandığı gerçeği kabul edilerek ihtilaf yönetimine girmeden önce, ihtilafların doğasını anlamak için FIDIC İnşaat İşleri Genel Şartnamesi'nin Dördüncü Versiyonu'nun ihtilafları tetikleyen maddeleri araştırılmıştır. Bu doğrultuda, müteahhitler tarafından en çok karşılaşılan sorunlar göz önünde bulundurularak on tane madde seçilmiştir. Okuyucuya söz konusu maddelerin özündeki anlamı gösterebilmek için farklı bakış açıları sunulmuştur ve bu yorumlar yaşanmış örnek çalışmalar üzerinde test edilmiştir.

Son olarak, bu çalışmanın son bölümünde ihtilaf yönetimiyle ilgili bir sistem sunulmuştur. Bir projenin değişik zamanlarında tutulması gereken dokümanlar tanımlanmış ve düzgün bir ihtilaf dosyası hazırlanması için göz önünde bulundurulması gereken önemli noktalar vurgulanmıştır.

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## ABBREVIATIONS

BOQ	Bill of Quantities
BOT	Build Operate Transfer
COPA	Conditions of Particular Application
CPM	Critical Path Method
EOT	Extension of Time
EPC	Engineer Procure Construct
FIDIC	Federation Internationale Des Ingenieurs Conseils
GCC	General Conditions of Contract
GPS	Global Positioning System
LBGI	Louis Berger Group Incorporation
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
UK	United Kingdom
USAID	United States Agency for International Development

# 1. INTRODUCTION

## 1.1. Project Management

Project management in Civil Engineering is a suite of processes initiated to deliver a project in accordance with specific performance parameters agreed between two parties. These parameters, in the broadest sense of any definition, are generally the specified time and cost parameters as well as compliance with the Project Specification and any Special Conditions of Contract [1].

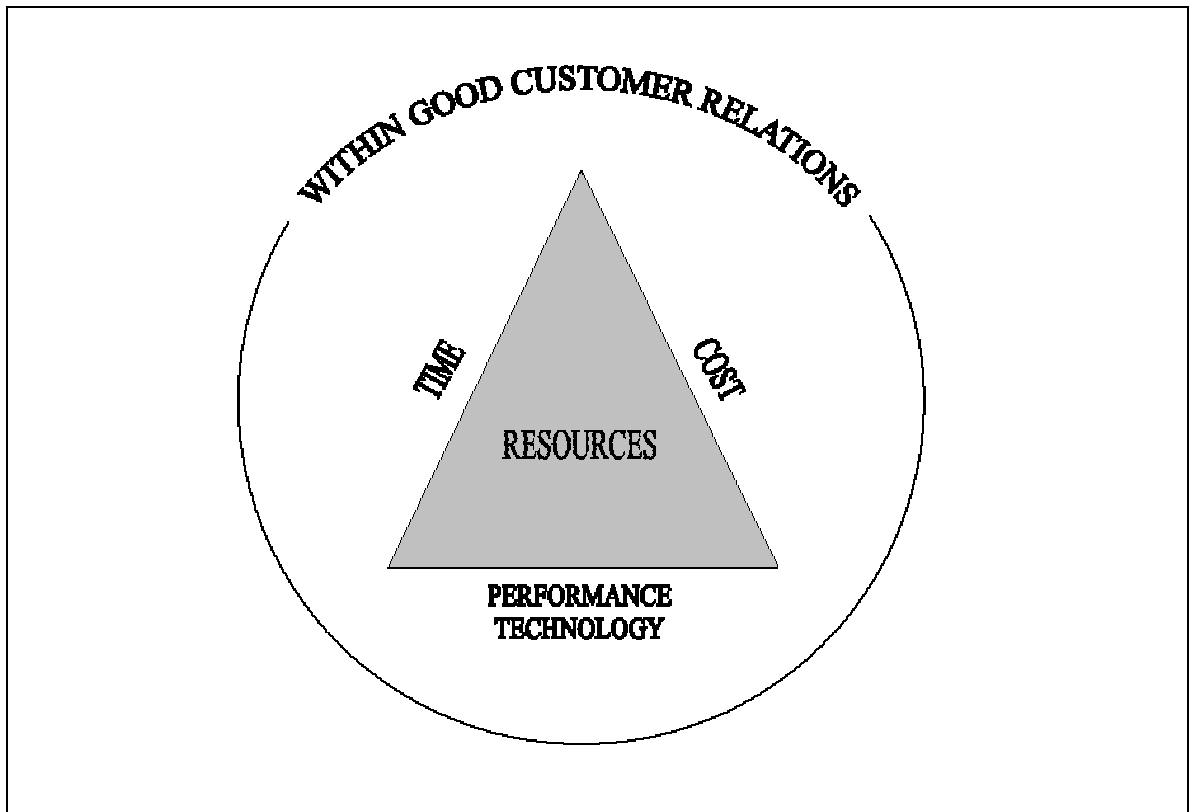


Figure 1.1. Overview of project management

Figure 1 is a graphical representation of project management and illustrates that complete process is designed to manage or control specific resources on a given activity within the time, within cost, and other performance criteria imposed by the task. Time, cost

and performance are the constraints on the project. If the project is to be accomplished for a client then the project has a fourth constraint: good client or customer relations [2].

Good project management requires the application of knowledge, skills, tools and techniques to project activities to meet project's specific requirements through the use of processes such as: scheduling, planning, supervision and conclusion.

### **1.1.1. Historical Background of Project Management**

The roots of project management come from the general systems theory, which can be classified as a management approach that attempts to integrate and unify scientific information across many fields of knowledge. Systems theory attempts to solve problems by looking at the total picture rather than through an analysis of the individual components.

In 1951, Ludwig von Bertalanffy a biologist described open systems using anatomy nomenclature. The body's muscles, skeleton, circulatory system, together with the other systems were all described as subsystems of the total system (the human being). This contribution was important in that it identified how specialists in each subsystem could be integrated so as to get better understanding of the interrelationships, thereby contributing to the overall knowledge of the operations of the system. Thus the foundation was laid for the evolution and outgrowth of project management.

In 1956, Kenneth Boulding identified the communication problems that can occur during systems integration. He advocated that, in order for successful integration to take place all subsystems specialists having their own individual languages must speak a common one such as mathematics. Today the Project Management Body of Knowledge guide (PMBOK) published by Project Management Institute as an attempt to document and standardize generally accepted project management information and practices is the guide being used to satisfy this need in project management.

During the 1960s it was more like a choice rather than a necessity whether or not to use project management and all the industries other than aerospace, defense, and

construction the majority of the companies maintained an informal method for managing projects.

By 1970 and during the early 1980s more and more companies departed from informal project management and restructured to formalize the project management process, mainly because the size and complexity of their activities had grown to a point where they were unmanageable within the current structure and additionally executives have realized that overcoming internal and external obstacles such as unstable economy, shortages, soaring costs, increased complexity, heightened competition, technological changes, societal concerns, consumerism, ecology, quality of work could be overcome by the proper implementation of project management.

By the 1990s companies had begun to realize that implementing project management was a necessity, not a choice. The realization of the driving forces such as capital projects, customer expectations, competitiveness, executive understanding, new project development, efficiency and effectiveness have led the executives to the recognition of the need for project management [2].

Today, at the early stages of the 21<sup>st</sup> century, project management is being implemented by more and more companies for completing the projects within the specified schedule and budget by fulfilling the required quality with the highest efficiency and productivity.

## **1.2. Project Management Knowledge Areas**

Created by the PMI, the PMBOK is a collection of processes and knowledge areas widely accepted as best practice within the project management discipline. The mentioned knowledge areas are illustrated in Figure 1.2. [3]

### **1.2.1. Project Integration Management**

Project Integration Management is a subset of project management that includes the processes required to ensure that the various elements of the project are properly coordinated. It consists of:

- i. Project plan development-integrating and coordinating all project plans to create a consistent, coherent document.
- ii. Project plan execution-carrying out the project plan by performing the activities included therein.
- iii. Integrated change control- coordinating changes across the entire project

### **1.2.2. Project Scope Management**

Project Scope Management is a subset of project management that includes the processes required to ensure that the project includes all the work required, and only the work required to complete the project successfully. It consists of:

- i. Initiation-authorizing the project or phase
- ii. Scope planning-developing a written scope statement as the basis for future project decisions
- iii. Scope definition-subdividing the major project deliverables into smaller, more manageable components.
- iv. Scope verification-formalizing acceptance of the project scope.
- v. Scope change control-controlling changes to project scope.

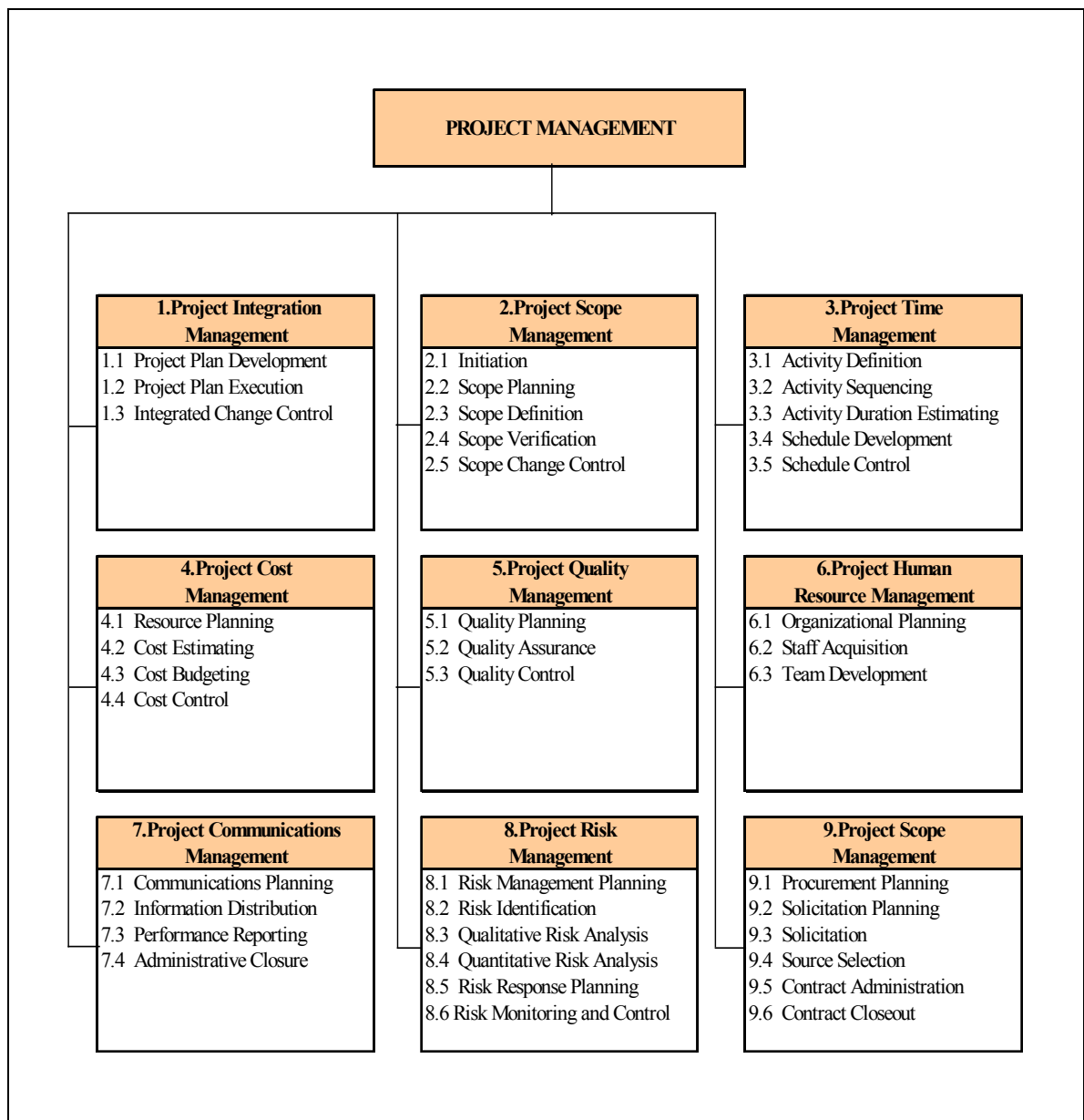
### **1.2.3. Project Time Management**

Project Time Management is a subset of project management that includes the processes required to ensure timely completion of the project. It consists of:

- i. Activity definition-identifying the specific activities that must be performed to produce the various project deliverables.

- ii. Activity sequencing-identifying and documenting interactivity dependencies.
- iii. Activity duration estimating-estimating the number of work periods that will be needed to complete individual activities.
- iv. Schedule development-analyzing activity sequences, activity durations, and resource requirements to create the project schedule.
- v. Schedule control-controlling changes to the project schedule.

Table 1.1. Summary table for project management knowledge areas



#### **1.2.4. Project Cost Management**

Project Cost Management is a subset of project management that includes the processes required to ensure that the project is completed within the approved budget. It consists of:

- i. Resource planning-determining what resources (people, equipment, materials) and what quantities of each should be used to perform project activities.
- ii. Cost estimating-developing an approximation (estimate) of the costs of the resources needed to complete project activities.
- iii. Cost budgeting-allocating the overall cost estimates to individual work activities.
- iv. Cost control- controlling changes to the project budget.

#### **1.2.5. Project Quality Management**

Project Quality Management is a subset of project management that includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It consists of:

- i. Quality planning- identifying which quality standards are relevant to the project and determining how to satisfy them.
- ii. Quality assurance- evaluating overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards.
- iii. Quality control- monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

#### **1.2.6. Project Human Resource Management**

Project Human Resource Management is a subset of project management that includes the processes required to make the most effective use of the people involved with the project. It consists of:

- i. Organizational planning-identifying, documenting, and assigning project roles, responsibilities, and reporting relationships.
- ii. Staff acquisition-getting the needed human resources assigned to and working on the project.
- iii. Team development-developing individual and group skills to enhance project performance.

### **1.2.7. Project Communications Management**

Project Communications Management is a subset of project management that includes the processes required to ensure timely and appropriate generation, collection, dissemination, storage, and ultimate disposition of project information. It consists of:

- i. Communications planning-determining the information and communication needs of the stakeholders: who needs what information, when they will need it, and how it will be given to them.
- ii. Information distribution-making needed information available to project stakeholders in a timely manner.
- iii. Performance reporting-collecting and disseminating performance information. This includes status reporting, progress measurement and forecasting.
- iv. Administrative closure-generating, gathering, and disseminating information to formalize phase or project completion.

### **1.2.8. Project Risk Management**

Project Risk Management is the systematic process of identifying, analyzing, and responding to project risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives. It includes:

- i. Risk management planning-deciding how to approach and plan the risk management activities for a project.

- ii. Risk identification-determining which risks might affect the project and documenting their characteristics.
- iii. Qualitative risk analysis-performing a qualitative analysis of risks and conditions to prioritize their effects on project objectives.
- iv. Quantitative risk analysis-measuring the probability and consequences of risks and estimating their implications for project objectives.
- v. Risk response planning-developing procedures and techniques to enhance opportunities and reduce threats from risk to the project's objectives.
- vi. Risk monitoring and control-monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.

### **1.2.9. Project Procurement Management**

Project Procurement Management is a subset of project management that includes the processes required to acquire goods and services to attain project scope from outside the performing organization. It consists of:

- i. Procurement planning-determining what to procure and when.
- ii. Solicitation planning-documenting product requirements and identifying potential sources.
- iii. Solicitation-obtaining quotations, bids, offers, or proposals, as appropriate.
- iv. Source selection-choosing from among potential sellers.
- v. Contract administration-managing the relationship with the seller.
- vi. Contract closeout-completion and settlement of the contract, including resolution of any open items.

In order to be able to fulfill the requirements of a project and to stay away from undesired outcomes like the failure of the project in terms of budget, time and quality these nine items with the inclusion of environmental management should be considered as a whole and should be taken care of in a good harmony.

In a perfect world where everything came out to be in accordance with the theoretical scientific guesses there would not be any discords, no claims and in the utmost case disputes. Unfortunately most of the time this is not the case, the real time projects highly suffer from changes and this leads to the good understanding of Project Claims Management which is involved with both Project Time and Project Cost Management in order to be able to get precautions before it is too late and afterwards to defend the rights when the time comes.

## **2. PROJECT CLAIMS MANAGEMENT**

Problems inevitably develop during a project's construction as a consequence of conflicting priorities between the Employer and the Contractor and changes introduced either knowingly or otherwise into the work. With good contract and claims administration, both the requirements of the Employer (to get the desired product at the quoted price), and the demands of the Contractor (to complete the project with the highest possible profit) can be achieved.

In accepting that discords will occur as a consequence of both change and the conflicts discussed above, both the Contractor and the Employer should focus on resolving these discords as soon as they occur without affecting the overall performance of the project. If such discords are ignored, it is inevitable that the conflict will escalate into more serious issues with much higher resolution costs which lead to the question "what is the best way to achieve this?" The only plausible answer is appropriate management which is achieved by accepting the validity and/or the occurrence of the below grouped items.

### **2.1. Contract Management Related Items**

- i.** During the life time of the project the conflicting priorities related of the contract are carefully considered on a daily basis throughout the project so that the possible future problems can be easily solved. Keen observations show clear evidence of developing problems and early attention mitigates their impact and increases management control.
- ii.** The contractor reads and fully understands the terms of the contract, especially the sections titled Special and/or Supplementary Conditions. The contradicting clauses possibly affecting the future performance of the project are identified and resolved by taking the confirmation of the Employer.
- iii.** Good faith is present between the parties and the contract is clearly worded, detailed and definitive in all aspects of its contents which are the agreement, general terms and conditions, special terms and conditions unique to the specific contract in question, pricing, technical specifications, drawings and other relevant

documentation such as geotechnical reports or other special studies that vary from contract to contract [5].

- iv. The contract clearly includes all the answers to the possibly occurring future problems related to schedule, extension of time, force majeure events, progress payments, escalation, changes and extra work, variation in quantities, changed conditions, dispute resolution, limits of liability, liquidated damages and allocation of responsibility and risk.
- v. The Contractor does not initiate any extra work on site until a written direction from the Employer is received [6].

## **2.2. Time Management Related Items**

- i. The project is designed, built and completed in the agreed time and to the agreed price in accordance with the applicable contract documents and all necessary changes thereto.
- ii. A clear, comprehensive schedule is prepared and consultancy is taken from an expert depending on the complexity of the project. This is to facilitate early analysis of delay or acceleration impact in the event of additional work and the calculation of the appropriate extension of time applicable under the contract as variances occur.
- iii. The project schedule is revised and updated taking changes into account as soon as they occur and the floating time which is the time available between the completion of an activity and the necessary start date of the following activity is used efficiently during revisions of the schedule.
- iv. Careful monitoring and controlling of performance facilities are done.
- v. The existence of the real concept of an elastic work force, or a flexible relationship between work activities, meaning that no element of work is rigid enough to require a fixed amount of time is accepted. Work duration can be altered by overtime, added equipment, more or less manpower and any number of positive or negative elements. Being aware of this concept, the Employer should leave the false perception of infinite elasticity of work performance aside and the Contractor should evaluate the practical limit of elasticity or its impact on his cost of performance properly.

### **2.3. Documentation Management Related Items**

- i. Documentation which may be defined as the contemporaneous planning, formatting, recording, organizing and storing of all relevant information on a project is done properly. The documentation may take the form of ;
- Correspondence
  - Diaries
  - Exception Reports
  - Computer Printouts
  - Photographs
  - Handwritten Memos to the File
  - Drawing Records
  - Payroll Records
  - Cost Records
  - Manpower and Equipment Records
  - Telephone Records
  - Daily Job Log
  - Meeting Minutes
  - Changes to Work
  - Change Orders
  - Payment Application Files
  - Request for Information Log
  - Instructions to Contractor
  - Notice of Potential Discord or Claim
  - Notice of Potential Delay

## **2.4. Change Management Related Items**

- i. Precautions are taken and the necessary records are prepared against early warning signs of changes which are;

### **2.4.1. Owner / Architect/ Engineering – Directed Changes**

- Additional work from changes, revisions, amplifications, or clarifications to drawings or specifications.
- Additional work not indicated in drawings or specifications.
- Directed acceleration to shorten schedule.
- Directed compression to accommodate more work in the same time frame.

### **2.4.2. Owner / Architect/ Engineer Failure to Perform**

- Unanticipated work from defective or deficient drawings or specifications.
- Work interruption, disruption or stoppage.
- Late owner furnished equipment, material, or anything furnished in condition unsuitable for use. Untimely review of required shop drawings.
- Failure of owner's other contractors to perform.
- Refusal to grant legitimate extensions of time.
- Failure to disclose information.
- Unwarranted rejection of work.
- Defective agency performance by a construction manager, including delays due to owner / architect / engineer procrastination.
- Excessive changes to the work.
- Arbitrary or capricious behavior regarding contractor responses to nonconformance and punch list rework.

### **2.4.3. Contractor's Rights: External Factors**

- Force majeure (acts of God, weather, war, civil disturbances, etc.)

- First, second or third tier strikes.
- Differing site conditions.
- Added costs to comply with new or revised laws, regulations or procedures.

#### **2.4.4. Contractor's Rights: Interference with Planned Work Operations**

- Work, work methods, or sequence different from that specified or expected.
- Area or site congestion.
- Area or site unavailability.
- Multiple occupancy of area or site.
- New or revised schedule requirement.
- Increased requirements for inspection, standards, quality control, or tests.
- Shifting of schedule "windows".
- Productivity losses due to overtime or extra shift.
- Late owner progress payments.
- Owner's financing institution interference.

### **2.5. Management of Risk Apportioning Related Items**

- i. In the existence of the sub-contractors, which is usually the case, the contractor is concerned about the problems that his sub-contractors may suffer from and provide solutions for them. Additionally, where detailed and clear agreements in which the limits of risk apportioning are stated, prepared and signed between the contractor and the sub-contractors [5].

### 3. CLAIMS ARE INEVITABLE

Generally on any construction site it is rare that both the Contractor and the Employer fulfill their respective requirements (as listed above). Preparing a project document that provides for every contingency is not always possible and requires a significant investment of time and money which clients quite often are reluctant to invest in. As such, it is inevitable that variance from the priced project will result leading to both claims and variations under the agreement.

In order to be able to better understand the nature of claims, their development and evaluation both from the Employer's and the Contractor's perspective, a general understanding of the contract template is necessary. In this document, the "FIDIC Contract Template" is examined to demonstrate the responsibilities of both the Employer and the Contractor for a specific project.

The FIDIC form of Contract is a widely used contract template that has been developed and tested over many years on use in many international projects.

This study primarily discusses FIDIC's 4<sup>th</sup> Edition 1992 (or The Red Book-Conditions of Contract for Works of Civil Engineering Construction) because it was the first edition that gained world wide acceptance as a fair and equitable contract template for both the Contractor and the Employer. The 4<sup>th</sup> Edition remains a widely used and accepted form of contract template in much of the developing world and forms the basis of the more recent 1999 revisions of the same document. Further the FIDIC's 4<sup>th</sup> Edition has been tested in many International Arbitrations and the clauses have established legal precedence and are very well understood.

Before starting to discuss on how FIDIC's 4<sup>th</sup> Edition deals with claims, an explanation on what FIDIC is and its evolution throughout the years is considered necessary [7].

### **3.1. What Is FIDIC?**

FIDIC, Federation Internationale des Ingenieurs Conseils or as the English translation the International Federation of Consulting Engineers was founded in 1913 by France, Belgium and Switzerland. For the period over two world wars it remained essentially a continental European organization. The United Kingdom (UK) became a member in 1949 followed by the United States in 1958. The newly industrialized countries started to become members in 1970s, and it was only then that FIDIC could truly claim to be international rather than a European organization. At present, it represents most of the independent practicing consulting engineer in the world.

In the case of Turkey, although the tendering system adopted in Turkey is not in accordance with the provisions of FIDIC Contracts' clauses, many Turkish Contractors are experienced with the template as a result of making business abroad and taking part in projects that are financed by overseas investors.

Among the members of FIDIC there are national associations that represent other constructional professionals such as architects in addition to consulting engineers and FIDIC also has affiliate members interested in the work it undertakes such as lawyers and insurers.

### **3.2. The Different Forms of FIDIC Contracts**

There are a variety of forms on contracts provided by FIDIC which are widely used throughout the international construction market. The following is a summary of these templates with a brief outline of where they are best used.

#### **3.2.1. The “Old” Red Book and The “Old” Yellow Book**

The initial form of FIDIC or the “Old” Red Book as it is now known was given the name “Conditions of Contract for Works of Civil Engineering Construction” and was first published in 1957. It was based on the UK standard conditions of contract for domestic projects in the UK, and was intended to provide a standard for use with those many

projects being undertaken at that time by British and other engineers in the Commonwealth and other countries abroad. The result has been that the documents have tended to be oriented towards a Common Law approach. There are 4 Editions of the Red Book, the last being published in 1987 (with reprints with editorial amendments in 1988 and 1992). The Red Book is intended for civil engineering construction works such as roads, water and sewage facilities, bridges, dams, hydropower stations, tunnels and all other construction works where most of the work is carried out at the site. This 1987 edition of FIDIC is still widely used today in developing countries where clients (developing host country governments) and local contracting expertise benefit from a widely understood and a more forgiving form of contract template. This contract template is currently used by World Bank, The Asian Development Bank and most agencies of the United Nations in the Asia Pacific, South East and Central Asia, India, Pakistan, Afghanistan parts of the Middle East and most of developing Africa.

After it was realized that this standard was not suitable for the works carried off-site, the production of the so called Yellow Book “Conditions of Contract for Electrical and Mechanical Works Including Erection on Site” for electrical and mechanical plant came into action in 1963. Thus the Yellow Book had more emphasis on testing, commissioning procedures and guarantees and it was suitable for manufactured plant such as turbines, generators, switchyard equipment and the last edition of the Yellow Book was published in 1987.

Given that every project in the construction business is nearly unique in its own respect, it is not possible to write a standard form of contract which will suit all civil works, or all electrical and mechanical works, but it is possible to formulate some guidelines of ‘best practice’, provided allowance is made for the differing or unique factors of individual projects. The Red and Yellow Books cope with this situation by having a Part I, which is the standard conditions applicable, and a Part II, ‘The Conditions of Particular Application (COPA)’, which must be drafted to suit the any specific requirements the client or Employer may have. FIDIC’s intention in developing the Part II template is that the printed Part I itself remains unaltered, however it can be modified by specific reference in Part II which is given a higher order of priority in the contract list of documents.

FIDIC Contracts have become recognized as being fair and balanced to both the Employer and the Contractor therefore the basic principle in both the Red and Yellow Books is that the risk is allocated to the party that is best able to bear and control that risk, and that the Contractor can only be expected to be bound by and to price for conditions which are known to him or which he is able to foresee and reasonably price in his tender. Therefore both books have clauses stipulating recompense and time extension when unforeseeable and unallowed for changes occurs like for example the late provision of drawings, or unforeseeable physical obstructions or conditions being encountered during the execution of the works [7].

### **3.2.2. The Orange Book**

The Orange Book 'The Conditions of Contract for Design - Build and Turnkey' was formed in 1995 to suit the growing market trend for projects being procured on a design-build turnkey basis.

The Orange Book included a number of innovations. One such change was the departure from the traditional role of the Engineer. In the Orange Book there was no Engineer as such. He was replaced by 'The Employer's Representative', and the difference between him and the Engineer of the Red and Yellow Books was that he was not required to be impartial. However, when he was required to determine value, cost or time extension, he had to 'determine the matter fairly, reasonably and in accordance with the Contract'.

### **3.2.3. The Latest, 1999 Suite of Standard Conditions of Contract**

After the publishing of the Orange Book and an update to the 1987 editions of the Red and Yellow Books it was inevitable that a new suit of contracts was required to meet the demand of a more sophisticated and evolving construction market. In late 1999 a suite of four new Standard Forms of Contract was published by FIDIC.

- i. Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer: The Construction Contract (The New Red Book)**

- ii. Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor: The Plant and Design/Build Contract (The New Yellow Book)
- iii. Conditions of Contract for EPC/Turnkey Projects : The EPC/Turnkey Contract (Silver Book)
- iv. Short form of Contract: The Short Form (Green Book)

The Books in the suite are all marked 'First Edition 1999', because they can not be regarded as updates of FIDIC's previous "Red, Yellow and Orange Books". The conditions imposed in this suit of contracts are far more demanding of both the Contractor and the Employer and places a higher degree of emphasis on strict compliance with the contact provisions.

#### **3.2.4. The New Red and Yellow Books**

The emphasis for the New Red and Yellow Books has changed from the old civil works versus e & m (electrical and mechanical) works to which party is responsible for the design (or most of the design). In modern composite project all-important allocation of risks is mainly dependent upon who is responsible for the design, not which particular type of work dominates.

#### **3.2.5. The New Red Book Is Similar to The Old One with Some New Features:**

- i. The template is suitable for all projects where the main responsibility for the design lies with Employer (or his Engineer)
- ii. Some design may, of course, be carried out by Contractor
- iii. Administration of Contract and supervision by Engineer
- iv. Approval of work, payment, similar certified by Engineer
- v. Work done is measured, payment is according to Bill of Quantities
- vi. Option for payment on Lump Sum basis

### **3.2.6. The New Yellow Book Replaces The Old One and The Orange Book:**

- i. The Old 'Yellow Book' dealt only with electrical and mechanical construction works (most design being done by Contractor)
- ii. The 'Orange Book' from 1995 dealt with Design-Build and Turnkey for civil and other construction where majority of design done by Contractor
- iii. New Yellow Book is thus suitable for all types of projects where main responsibility for design lies with Contractor
- iv. Recommended for the provision of electrical and/or mechanical plant, and for the design and execution of building or engineering works
- v. Some design may be carried out by the Employer or his Engineer
- vi. Employer provides 'Employer's Requirements' to which Contractor designs
- vii. Administration of Contract and supervision by Engineer
- viii. Approval of work, payment, etc. certified by Engineer
- ix. Payment on Lump Sum basis, usually against a Schedule of Payments
- x. Testing procedures usually more complicated than for 'New Red Book'

### **3.2.7. Identical or Similar Provisions Are Included in Both Books:**

- i. Traditional competitive tendering procedures are envisaged
- ii. Risk sharing is balanced between Parties, as in Old Red and Yellow Books, e.g.
  - Employer takes risk of 'adverse physical conditions
  - and unforeseeable 'operation of the forces of nature
  - and design by Employer
  - in addition to war (anywhere), terrorism, riot, & similar (within the country), similar
- iii. All claims, from either Party, have to follow a strict procedure
- iv. Engineer is no longer stated to be 'impartial' as old Red & Yellow Books  
He 'shall be deemed to act for the Employer', except as otherwise stated. However when he has 'to agree or determine' any matter he shall 'make a fair determination in accordance with the Contract
- v. Employer must submit - when requested - evidence that he has the finances to pay the current Contract Price

The New Red and Yellow Books just like the previous updates have been established to overcome the difficulties encountered in the previously experienced projects by the Employer and the Contractor. As more projects are undertaken and problems are uncovered, FIDIC by acting impartially aim to assign the responsibility of solving these new problems to the party who is most capable of supporting them by revising clauses in the updated contract templates [7].

In addition to the New Red Book and the Yellow Book, the 1999 Suite of Standard Conditions of Contract includes two completely new books which are titled as “The Silver Book” and “The Green Book” as previously stated.

### **3.2.8. The Silver Book**

The Silver Book was published for those projects where Employers want traditional projects but with a more certain final price and completion time and less Employer-risk than stated in the Red Book and the Yellow Book. It serves as a book where the Parties enter the contract with full understanding, and acceptance, of the risks (instead of trying to adapt another risk-sharing arrangement) and as a common starting point for EPC/Turnkey type projects, usually with private financing, in a BOT or similar environment.

Among the features of the EPC/Turnkey Book (Silver Book) the following can be mentioned:

- i.** Responsibility for design lies solely with Contractor
- ii.** Employer provides 'Employer's Requirements' to which Contractor designs  
- Employer's Requirements usually 'performance specification' type
- iii.** Contractor carries out all engineering, procurement, construction providing a fully-equipped facility, ready for operation at 'the turn of a key'
- iv.** No Engineer - instead it is the Employer who may appoint an Employer's Representative
- v.** Lump sum Contract Price
- vi.** Extended testing procedures including tests after completion
- vii.** Contractor takes majority of risks, Employer pays more to cover such risks

viii. Final price and time of completion should be more certain

### **3.2.9. The Green Book**

The main forms of contract were found rather long and unnecessary unwieldy for relatively simple and short duration projects. So in 1999 production of a totally new book as by then was given the name “The Short Form of The Contract (Green Book)” was inevitable.

The Short Form as still being practiced successfully on all types of projects with values up to a couple of million dollars and 18 months completion time, has basically the same balanced risk sharing principle as the New (and old) Red and Yellow Books. There is no 'Engineer', so it is a 'direct' contract between the Employer and the Contractor. Design can be carried out by either party, and all types of construction work may be covered. Payment may be on a lump sum basis or on any other basis.

### **3.3. How Does FIDIC’s Fourth Edition Deal with Claims?**

FIDIC 4<sup>th</sup> Edition (or the 1992 Edition of The Red Book- Conditions of Contract for Works of Civil Engineering Construction) remains a widely used contract template in much of the developing world. The Contract is formed in two parts, the first or General Conditions of Contract (GCC) is the standard form of contract developed by FIDIC. In Part II or the Conditions of Particular Application (COPA), the Employer has the ability to modify Part I to meet any specific requirements that his project requires. In this case FIDIC provides a guide to assist the Employer draft appropriate clauses. Within the contract itself there are 10 principle clauses due to which substantial claims generally arise;

- i. Clause 44 Extension of Time for Completion
- ii. Clause 40 Suspension
- iii. Clause 42 Possession of Site and Access Thereto
- iv. Clause 17 Setting-out
- v. Clause 6 Custody and Supply of Drawings and Documents
- vi. Clause 51 and 52 Variations & Valuation of Variations

- vii. Clause 12 Not Foreseeable Physical Obstructions of Conditions
- viii. Clause 65 Special Risks
- ix. Clause 69 Default of Employer
- x. Clause 70 Changes in Cost and Legislation

In the following section my interpretation of each clause is explained in depth with the support of the documents ‘Guide to the Use of FIDIC’ [8] and ‘The Practical Legal Guide’ [9] and the commentaries are tested in Chapter 4 through real time case studies. The case studies are chosen from projects being performed in Afghanistan as a consequence of my involvement with a company that has extensive ongoing work in the country and that on many of the contracts a wide variety of change has generated a significant suit of claims. Please refer to Appendix A for the below mentioned clauses of FIDIC 4th Edition.

### **3.3.1. Clause 44, Extension of Time for Completion**

Clause 44 provides the mechanism for extension of time to be granted.

As Clause 44.1 states, the granting of an extension of time, to which the Contractor may become entitled, might mainly arise from factors such as delay in exceptionally adverse climatic conditions, in obtaining possession of the Site (Clause 42), delay in the issue of drawings or instructions (Clause 6), adverse physical obstructions or conditions (Clause 12), suspensions (Clause 40), extra work (Clause 51), damage or delays to the Works (Clauses 20 and 65) or delay in impediment or prevention by the Employer. In addition to these factors clause 27 (Fossils) and clause 36.5 (Engineer's determination where tests not provided for) have direct references to clause 44 as well but compared to the above listed ones they are minor factors [9].

Generally the delays can be classified in four categories;

- Contractor caused delays: no extension of time or reimbursement of costs, liquidated damages deducted;

- Neutral delays, where the Contractor receives an extension of time but no reimbursement of costs; each party bear their own cost
- Delays wholly the responsibility of the Employer where the Contractor receives extensions of time and reimbursement of additional costs
- Concurrent delays, where the delay is due one or both in part of the Contractor and the Employer, the evaluation of an extension of time and reimbursement of costs in this case is not a simple matter. The Engineer / Arbitrator has to establish and apportion responsibility. In order to be able to do this the Engineer / Arbitrator needs to establish the core reason driving the true delay and apportion responsibility to each party. For instance in a building construction project, where the Employer is late in supplying the necessary above foundation design and drawings and the Contractor has not provided the piles yet to initiate the project, each party would have the right to say that the core reason leading to the concurrent delay was not resulting from his failure and the evaluation of an extension of time and reimbursement of costs would not be a simple matter. Usually to prevent this occurrence the Employer will insert an amendment to Clause 44 in the COPA similar to,

*“In the event of an Employer caused delay coinciding with a Contractor caused delay, where each delay impacts the projects critical path, the delay caused by the Contractor will be considered dominant and a claim for an extension of time and or additional costs will not be considered.”*

Unless there is an alteration in COPA for clause 44 concerning this discussion then, in many cases The Engineer or Arbitrator will assess a concurrent delay as neutral and each party absorbs his own costs.

Although the granting of an extension of time does not necessarily entail extra cost to the Employer, the effects of delay may entitle the Contractor to extra payment. Here, understanding the difference between a delay and a critical delay is of great importance because an extension of time to the date for completion can only be granted if the Contractor proves that the delay the project suffers is a critical delay meaning that it has an impact on the project’s critical path. If the Contractor demonstrates that his critical path

has been delayed, he is granted an extension of time to the date for completion and must then prove his prolongation damages. While it is generally expected that a Contractor's damages be paid for his extended overhead, the burden of proof rests with the Contractor to prove what his additional costs are. In most cases critical delay causes what is generally known as prolongation damages, extended on and off site overhead costs, and project disruption. Project disruption is the additional costs a contractor suffers as a consequence of a loss of efficiency or productivity caused by idle plant, equipment and labor.

However, there are also other non-critical delays that can impact a contractor's program that are not critical, but still entitle the Contractor to his increased costs. For example, on a motorway project the project's critical path may be initially through the earthworks however a bridge that is due to start is delayed by a late change in the foundation design. The piling rig has been mobilized to site and piles are ready but a start is not possible until the foundation design is resolved. In this case the contractor is in delay and paying for an idle piling crew and equipment, however the delay is not impacting the project's critical path and the date for completion because of float in the bridge activity in the main program. In this case, the Contractor would notify a claim for additional costs under Clause 6 (Custody and Supply of Drawings and Documents) of the contract and ask for immediate direction to demobilize the piling crew or remain on standby at a daily cost.

FIDIC 4th Edition is very clear in assigning the risk of adverse weather to the Contractor. In the case of "exceptionally" adverse weather each party bear his own costs. The Contractor is expected to take note of the "hydrological and climatic conditions" under Clause 11.1 (Inspection of Site) and exceptionally adverse climatic conditions are excluded from Clause 12.2 (Adverse physical obstructions or conditions). Additionally suspension is compensated provided that its existence is not due to exceptionally adverse climatic conditions. All these references prove that the Employer strictly requires the Contractor to make allowances in his tender for the undesirable outcomes of adverse climatic conditions. In the case where the number of adverse weather days is not nominated in the COPA, the Contractor must review the weather records for the past years and allow sufficient time and cost in his construction program to allow this time. In the event that the weather experienced is "exceptionally" adverse in the project period, the Contractor must prove this case to qualify for an extension of time under this clause. Yet still the Contractor would not

be paid for his costs because the Employer's perspective is, in the case of exceptionally adverse climatic conditions, there is a neutral delay and each party bears his own cost [9].

**i. Clause 44.2, Contractor to Provide Notification and Detailed Particulars**

Clause 44.2 focuses on the importance of notifications and keeping records stating that the events which may give rise to an entitlement to an extension are dealt with when they occur and that they can be identified and investigated. This is the reason why records are asked for within 28 days that a Contractor claims for an extension of time.

The necessity of good communication and understanding between the Employer and the Engineer is of great importance since the granting of an extension of time is based on the Engineer's interpretation of the Contract and his assessment of the circumstances involved during the execution of the works and the basis for the claim stated by the Contractor in his notification. Yet still the Engineer should act impartially while making his decision (According to Clause 2.6) namely to allow extensions which are verified by contemporary records but disallow very late claims of which his team had no knowledge and which the Contractor seeks to support by new or oral evidence only [8].

**ii. Clause 44.3, Interim Determination of Extension**

Clause 44.3 states that events entitling a Contractor to an extension of time may be continuing, in which case detailed particulars can only be established during a longer period than in four weeks. Clause 44.3 provides for the submission of interim particulars at intervals of not more than 28 days. This implies that contemporary records will be available when the claim is eventually finalized [8].

This clause additionally states that the Engineer shall make an interim determination of extension of time when he receives the interim particulars from the Contractor and he must determine an overall extension of time after the receipt of the final particulars. In both cases the Engineer should notify the Contractor accordingly. It is very important that the Engineer must give the Contractor a direction on a delay where the event has a continuing effect because if the Contractor submits details but is ignored or wrongly denied, he must

consider whether he is to accelerate the work and meet the unaltered date for completion or risk liquidated damages. It should be noted that the Contractor's costs for accelerating the work is much higher than the liquidated damages charged and it would be less harmful to risk the liquidated damages rather than accelerating the work for the Contractor.

### **3.3.2. Clause 40, Suspension**

Clause 40 states that if the Engineer so instructs, the Contractor is to suspend all or any part of the works and properly protect and secure the works as the Engineer thinks necessary for the duration of such suspension. Unless the suspension is either provided for in the contract, (such as in the case where religious festivals or any nonworking traditional days are especially stated in the contract documents. The Contractor must make allowances for these days in his work program and make his planning accordingly), or is the Contractor's responsibility, or is necessary due to the weather, the proper execution or safety of the works (for a reason not being the Employer's responsibility listed under Clause 20.4 Employer's Risks), the Contractor will be reimbursed. In that case the extension of time and costs to be granted to the Contractor are determined by the Engineer.

If a suspension of all or any part of the works for which the Contractor is to be compensated (not resulting from the reasons (a), (b), (c) or (d) of Sub-Clause 40.1) lasts for 12 weeks, the Contractor can give notice requiring permission to proceed within 4 weeks. If permission is not given, the Contractor may give notice and treat the part of the works as omitted or, where all the works were suspended, terminate under clause 69.1 (Default of Employer). In this case the Contractor would be compensated for all of his costs and for any loss and damage that he has incurred [9].

### **3.3.3. Clause 42, Possession of Site and Access Thereto**

Clause 42 states that unless the contract contains specific provisions, the Employer is to hand over possession of as much of the site and the agreed means of access as necessary to enable the Contractor to proceed with his program or proposals for the project.

If the Contractor is delayed or incurs costs due to a failure by the Employer to give and maintain the necessary possession, the Engineer is to grant an extension of time and the Contractor's additional costs [9]. (The Employer's obligation for maintaining the necessary possession is implied but still worth mentioning because there is a possibility that during the lifetime of a project claims related to none maintenance of the possession of site by the Employer may occur. An example could be given for the case when there are two different Contractors performing road construction at nearby locations. One of the projects may be split into two halves where the second half is dependent on the completion of the other project with the other Contractor. The Employer may not give the possession of the site as a whole to the first Contractor assuming that by the time the first Contractor finishes the first half to go on with the second half of the works the other Contractor will have already finalized his work but if the works do not proceed in accordance with expectations the first Contractor will not be given possession of site for the second half of the project on time and will be delayed accordingly) Since the Contractor will initiate his proposed work program with the possession of site and access thereto, the Engineer must be alert to the fact that the more he extends the time for making the site available to the Contractor the more the work will prolong due to this critical delay and the more he will need to pay to compensate the costs of the Contractor due to this prolongation.

Clause 42.3 states that the Contractor is to bear all costs and charges related thereto for any special way leaves or additional facilities required off-site (like transporting exceptionally heavy equipment) unless if special or temporary wayleaves or additional facilities are only required in order to enable the Contractor to execute a variation instructed by the Engineer. In that case the Contractor, relying on the words "required by him" has the right to argue that variations and the associated wayleaves are required by the Employer and he must be reimbursed for costs incurred which he could not possibly have allowed for.

#### **3.3.4. Clause 17, Setting Out**

Clause 17 states that the Engineer supplies the Contractor with the essential information upon which the setting out of the works by the Contractor is to be based [8]. Once the Engineer has stated in writing the original points, lines and levels of reference,

the Contractor is responsible for the accurate setting-out of all parts of the work and providing labor and equipment for the purposes of setting out. The Contractor shall rectify any setting-out error that appears, if required to do so by the Engineer, at his own cost unless the error is based on incorrect written data supplied by the Engineer, in which case the Contractor is entitled to reimbursement in accordance to Clause 52 (Valuation of Variations) [9].

The potential for a Contractor to submit a claim under this clause is limited to his additional costs if the error arises due to the fault of the Employer. In this case the Contractor is able to claim his direct costs for the rectification of the faulty information.

On the matter of time or delay, the clause remains silent. If the Contractor believes he has suffered critical delay he is obliged to notify a claim for additional time under clause 44 (Extension of Time for Completion) of the GCC. Specifically, Clause 44.1 item (d), provides that "any delay, impediment or prevention by the Employer" entitles the Contractor to an extension of time. In this case the Contractor will be required to prove that the delay is both critical and the responsibility of the Engineer's initial misinformation has provided it. In such a case, an extension of time to the date for completion will need to be determined and agreed. Further the Contractor has entitlement for any additional costs arising from the extension of time in accordance with clause 17. The additional costs may include project prolongations costs [additional project overheads] as well as any consequential direct costs arising.

It is important to note here that Clause 53.1 (Notice of claims) requires the Contractor to give notice of a claim within 28 days, and to keep contemporary records and to provide detailed particulars of the claim within a further 28 days. It should be noted that the Contractor does not have to submit a full and formal claim, but is better served if he does the best he can for the early resolution of the claim. The notice provisions are to allow the Engineer to direct the Contractor to maintain specific contemporaneous records that will allow smooth resolution of the claim if entitlement is established.

If a contractor does not submit notice, he is not barred from submitting a claim at a later date but is limited in what he can recover by whatever contemporaneous records were maintained to prove his case.

### **3.3.5. Clause 6, Custody and Supply of Drawings and Documents**

Clause 6 states that the Engineer is to provide two copies of the drawings to the Contractor. If the Contractor needs any further copies for any reason he is to provide them himself. During the lifetime of a project until completion, the Contractor is obliged to keep the drawings and specifications confidential and use them or show them to a third party only when strictly necessary for the project. Here it is important to note that the definition of this clause does not only cover the documents in existence at the time of the contract but also the documents brought into being during the course of the contract. When the project is complete, the Contractor is to return all documents to the Engineer. The Contractor is responsible for providing the Engineer with four copies of all drawings and specifications prepared by him and approved by the Engineer. Further copies are supplied at the request of the Engineer at the Employer's cost [9].

The Contractor is required to keep one copy of the drawings on site and available for inspection and for use at any reasonable time by the Engineer or anyone with the Engineer's written authorization.

If the works are likely to be delayed or disrupted unless a drawing or instruction is issued by the Engineer within a reasonable time, the Contractor must give a notice to the Engineer and a copy to the Employer, giving the details of what is required and in what time frame. (Alternatively, in the absence of such a notice under Clause 6, the Contractor could still claim for an EOT relying on Clause 44.1 item (d) "any delay, impediment or prevention by the Employer" entitles the Contractor to an EOT)

If, despite the notice, the drawing or instruction is late and the Contractor suffers delay or incurs costs, the Engineer is to consult the parties and grant time and costs.

In considering a grant of time and costs to the Contractor, the Engineer is to take into account any contributory delay by the Contractor in his production of drawings if applicable. If the Contractor contributes to the delay referred to in Sub-Clause 6.4 the degree to which he is responsible will be taken into account when additional cost or time is calculated.

Clause 6 is one of only a few clauses which automatically generates entitlement to additional time and costs and is the only clause in the FIDIC 4th edition which mentions the term “disruption”. Disruption is defined by the loss of either efficiency or productivity of particular work activity and can vary in intensity from complete stand-by (as in the case of suspension) to highly constrained efficiencies that result in a loss of productivity [8].

### **3.3.6. Clause 51 and 52, Variations & Valuation of Variations**

For providing the correct interpretation and understanding, Clause 51 Variations and Clause 52 Valuation of Variations are considered together.

#### **i. Commentaries on Clause 51**

Unless the Engineer’s authority is limited in COPA under clause 2.1 (Engineer’s Duty and Authority), Clause 51.1 empowers the Engineer to order additions, omissions and/or changes to the works from that envisaged in the drawings and other Contract documents upon which tender was based. Such variations are to be valued in accordance with clause 52 (Valuation of Variations) unless the need for the variation arose through some default of the Contractor. In that case the Contractor is to bear all the related costs [9].

When the Contractor is notified of a variation, he can either accept the change and go on performing works accordingly or if in the opinion of the Contractor the altered or added work is not either necessary or appropriate, the Contractor can challenge the Engineer’s opinion under Clause 67 (Disputes) and not complete the work. In the evaluation process of a possible dispute considering variations or during the evaluation of variations, the alteration of Clause 2.1 (Engineer’s Duty and Authority) in COPA is of great importance,

because if the alteration clearly states that the Engineer is obliged by his terms of engagement to obtain the approval of the Employer for variations than the Contractor must be wise enough to seek for the approval of the Employer as well as the Engineer before commencing anything new to the Contract but if no such alteration is made in COPA for this clause then the Employer has no right to challenge the decision of the Engineer and denying it while defending himself in the existence of a dispute.

For the benefit of the Employer, since alterations, additions or omissions are additional money related issues it would be wise to force the Engineer to get the approval of the Employer before making decisions on these issues, in the COPA under Clause 2.1 (Engineer's Duty and Authority). In the Guide to the Use of FIDIC it is suggested that the parties include in the COPA a variations procedure that would cover authorization by the Employer and agreement of cost by the Engineer and the Contractor, in advance of the final decision to issue the variation, prior to the execution of the works.

Clause 51.2 states that the Contractor must obtain a written instruction from the Engineer unless the variation is simply an increase or decrease in the quantities stated in the bill of quantities. Guide to the Use of FIDIC states that *“a variation is not required if the actual quantities of the work envisaged at the time of tendering prove, on remeasurement, to be different from those recorded in the Bill of Quantities”* relying on Clause 55.1 (Quantities) which states that *“the quantities set out in the Bill of Quantities are the estimated quantities for the Works, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor...”* [10].

Yet still it follows that the wording of the clause supports that any increase or decrease in the quantity of any work included in the Contract is a variation. This matter will be further discussed under Clause 52.2 (Power of Engineer to fix Rates).

## **ii. Commentaries on Clause 52**

While clause 51 allows the Engineer/Employer to direct additional work of similar scope and nature, clause 52 is the clause under which those changes are valued.

The starting point to value any variation under this clause is that the rates and prices set out in the contract should be used as far as possible, failing which suitable alternative rates are either agreed or fixed by the Engineer. While the discussions proceed, the Engineer is required to make on account payments (temporary payments not to commercially disadvantage the contractor) to the contract for the varied works. Clause 17.1 (Setting Out), Clause 20.3 (Loss or Damage due to Employer's Risks), Clause 31.2 (Facilities for Other Contractors), Clause 49.3 (Cost of Remedying Defects) and Clause 65.3 (Damage to Works by Special Risks) have direct references to Clause 52 [9].

For the occasions where it would be unfair to continue to use the rates contained in the contract for a given variation because of its nature or amount renders the rate inappropriate and therefore inapplicable, a new rate is agreed or fixed by the Engineer. Again, the Engineer is to make on account payments to the Contractor.

The strictest notice requirements in the contract template are imposed on clause 52 for a Contractor to claim additional time and costs as a consequence of a direction to vary work. Clause 52 requires that within 14 days of a direction in writing from the Engineer and before the commencement of work, a contractor must give formal notice that the Contractor will require additional time and/or costs to complete the varied work. This notice provision is required to allow the Employer the opportunity to reconsider his direction on the basis of cost and/or time.

The strict notice provisions are equally applicable to both the Contractor and the Engineer and can either be given by the Contractor to the Engineer for his intention to claim extra payment or a varied price or rate, or they can be given by the Engineer to the Contractor of his intention to vary a rate or a price. Unless these instructions are given within 14 days the variations stated under Clause 51 (Variations) will not be evaluated under Clause 52.1. (Valuation of Variations).

Adjustment of the prices for a decrease or increase in the amounts stated in the Bill of Quantities is a matter open to discussion.

In the opinion of the Employer, it could be argued that because the Contractor is paid for the actual measured quantities of work he has completed under Clause 60 (Certificates and Payments), and that he is paid an adjustment for overhead contribution for an increase or decrease in the final contract sum under Clause 52.3 (Variations Exceeding 15 percent) there isn't a need for the Engineer to adjust any rates or prices in the case where there is a decrease or increase in the amounts stated in the Bill of Quantities. However this is not the right way of interpreting this clause.

Varied work is a change. If that change effects any work activities' nature rendering the rate that compensates the Contractor for that work inappropriate then that rate should be reviewed by the Engineer in accordance with his obligation under clause 2.6 (Engineer to Act Impartially) and re-rated.

For example considering the case where the Engineer directs varied work that requires additional excavation works, accepting the validity of the price stated for excavation works in the Contract would not be realistic in the case where the new soil conditions are much tougher [i.e. rock] and therefore less productivity is achieved to the conditions the tendered rate was based on. In this case the Contractor can argue that the rock renders the rate quoted in the BOQ inappropriate and therefore inapplicable for the directed change and a new rate must be agreed on.

Additionally, Clause 52.2 states that *"Provided that if the nature or amount of any varied work relative to the nature or amount of the whole of the Works or to any part thereof, is such that, in the opinion of the Engineer, the rate or price contained in the Contract for any item of the Works is, by reason of such varied work, rendered inappropriate or inapplicable, then, after due consultation by the Engineer with the Employer and the Contractor, a suitable rate or price shall be agreed upon between the Engineer and the Contractor"* [10]. This part of the clause provides contradictions to the Employer's above stated perspective and defeats it. In this case the Contractor must be compensated by additional payment under clause 52.2 (Power of Engineer to fix rates) which enables the Engineer to judge the appropriateness and applicability of the rates or prices contained in the Contract and define a newly adjusted price in agreement with the Contractor and the Engineer for that specific item as in the previously given example.

Clause 52.2 in the COPA can be modified to provide a ‘contractual trigger’ to review the rate for an item of work which has increased or decreased in quantity, to overcome the difficulty of when a rate should be reviewed FIDIC’s Own Guide suggests;

*“Provided further that no change in the rate or price for any item contained in the Contract shall be considered unless such item accounts for an amount more than 2 per cent of the Contract Price, and the actual quantity of work executed under the item exceeds or falls short of the quantity set out in the Bill of Quantities by more than 25 per cent.”*

Additionally, if the works are varied by the omission of work it would be wrong to think that since the Contractor has not performed anything concerning the omitted work he is not going to be entitled to any additional payment. In an omitted item, a contractor has built in overhead and profit recovery and as such is entitled to claim for his lost profit and lost overheads that are hidden in the tender prices of omitted work.

If at the end of the project, it is found that all variations (both the additions and deductions) when summed up, amount to more than 15% of the contract price (as adjusted excluding provisional sums, dayworks and adjustments under Clause 70 (Increase or Decrease of Costs)), an addition or omission to the contract sum may be agreed or determined by the Engineer in respect of the Contractor's Site and general overheads costs. This clause is provided for the benefit of both the Employer and the Contractor and applies equally to both. The clause is included for the occurrence that significant changes occur across a significant number of pay items that don’t qualify for re rating in isolation under clause 52.2, but however when considered in total, distort the contract’s over head contribution [9].

If significant change impacts the project and the contract measure at completion increases by more than 15%, but the time it took the Contractor complete was not effected, the Employer may argue under this clause that a Contractor has disproportionately ‘over recovered’ his overhead contribution and seek a reduction in the contract price.

Conversely, if a Contractor has had a significant reduction in the measured amount of work completed within the original contract period he is entitled to seek recovery of his lost operating overhead contribution and a loss of profit for attendance.

The Engineer is empowered to issue instructions to require any varied work to be executed on dayworks, at the rates and prices set out in the contract. This is usually to the benefit of the Contractor because of the high level of profit included in the daywork schedule of rates and prices. The Engineer would make such a preference when there are no rates applicable to the nature of the varied work or where the amount of work is small. If the amount of the work is substantial then the Engineer will prefer fixing a rate. Detailed provision is made for the proving of the amount of labor and materials involved. Since the Contractors have a tendency to provide exaggerated amounts in the particulars of dayworks to be concerned in the existence of a claim the Engineer strictly requires vouchers, receipts and any additional formal proof reflecting the actual amounts of costs for labor and materials used [9].

### **3.3.7. Clause 12, Not Foreseeable Physical Obstructions of Conditions**

Clause 12.1 states that the Contractor will be taken to have satisfied himself that his tender and the rates and prices stated in the Bill of Quantities are correct and sufficient and that they cover everything that the Contractor has to do to complete the contract [9].

This clause works in harmony with Clause 11.1 (Inspection of Site) where the Contractor is expected to have inspected and examined the site and its surroundings and the information available in terms of hydrological, climatic, subsurface conditions, the extent and nature of work and materials necessary for the execution and completion of the works to satisfy himself that he has all the data he seeks for his evaluations in his tender price.

Additionally this Clause needs to be read in conjunction with Clause 55 to 57 (Measurement) because it sets a defense mechanism for the Employer against a claim by the Contractor for variations and extra payment on the grounds that items of work were not covered within the Bills of Quantities by stating that “The Quantities set out in the Bill of

Quantities are the estimated quantities for the Works, and they are not to be taken as the actual and correct quantities of the Works to be executed by the Contractor in fulfillment of his obligations under the Contract”. Relying on this wording, the Employer may say that the Contractor has to satisfy himself that the tender covers all his obligations under the contract and that if the work which is the subject of the claim was reasonably to be disclosed in the drawings, specification the Contractor is entitled to no further payments.

Clause 12.2 states that if the Contractor encounters physical obstructions or conditions (other than bad weather), which an experienced Contractor could not have foreseen, he may give notice to the Engineer. If after consultation with the Employer and the Contractor, the Engineer agrees, he grants an extension of time and costs including in respect of any instruction or other action taken by the Contractor to overcome the obstacle. Here the most important question to be asked is “What is reasonably foreseeable by an experienced Contractor?”

This is one of the “grey” clauses within the FIDIC’s 4th Edition in the sense that the evaluation of a claim resulting under this clause is unclear and subjective.

Considering the example of differing site conditions where rock stratum is encountered in the subsoil of a bridge piling operation where information provided by the employer was either incomplete or did not show rock. Rock is an everyday risk in civil engineering but slow and expensive to remove. It would not be realistic to expect the Contractor to foresee the possibility of a rock stratum and allow in his tender prices for it. If a contractor were to do this his price would become uncompetitive and he would never win work.

After all, FIDIC based Contracts have become recognized as being fair and balanced to both the Employer and the Contractor and the basic principle of this clause is that the risk is allocated to the party that is best able to bear and control that risk, and that the Contractor can only be expected to be bound by and to price for conditions which are known to him or which he is able to foresee and reasonably price in his tender so despite the fact that Clause 11.1 (Inspection of site) requires the Contractor to have included in his tender for anything that practicable investigations should have disclosed, for the evaluation

of claims resulting from unforeseeable physical obstructions the decision should be given impartially. Yet still the evaluation differs from country to country and depends on the laws governing the contract. Some prefer to allocate the risk as a whole to the Contractor no matter what the problem is relying on Clause 11.1 and some just do the opposite like US Law supports the doctrines of equity, impossibility and impracticability. These doctrines prescribe that it is unreasonable for one man to benefit from another's misfortune and that a contractor cannot be reasonably expected to allow for unforeseeable events.

### **3.3.8. Clause 65, Special Risks**

Clause 65 provides the mechanism for how special risks that impact the works are evaluated.

A contractor shall have no liability for damage to the works (other than condemned work under clause 39 (Removal of Improper Work, Materials or Plant and Default of Contractor in Compliance)), other property or injury or loss of life arising from the special risks [9].

Although the Contractor is responsible for the care of the works until the date of issue of the Taking-Over Certificate there are certain risks for which he is not responsible. These risks are titled as "Employer's Risks" and are listed under sub-paragraphs a, b, c, d and e of Sub-Clause 20.4 as;

- (a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- (b) rebellion, revolution, insurrection, or military or usurped power, or civil war,
- (c) ionising radiations, or contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component thereof,
- (d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
- (e) riot, commotion or disorder, unless solely restricted to employees of the Contractor or of his Subcontractors and arising from the conduct of the Works.

The Employer Risks are included under the definition of Special Risks in Sub-Clause 65.2 with the exception that the Employer is not responsible for the risks covered by Sub-Clause 20.4 (b) - 'rebellion, revolution, insurrection or military or usurped power, or civil war' outside the country in which the works are being constructed [10]. *“The reason for this is that the Employer should be able to assess such risks in the country where the works are to be constructed but it would be unreasonable for the Employer to bear such risks in the country of the Contractor or countries through which, for example, the Contractor may have elected to transport Temporary Works, Contractor's Equipment, Plant and materials as well as staff and labor.”* This commentary is quoted from Guide to the Use of FIDIC. Although they have provided this commentary here, in Sub-Clause 20.4 for item (b) - 'rebellion, revolution, insurrection or military or usurped power, or civil war' they did not make a distinction for whether or not these events take place outside the country in which the works are being constructed and put this item under Employer's risks for which the Contractor is still being compensated under the provisions of sub clause 20.3 (Loss or Damage due to Employer's Risks) Why to bring some limitation under Clause 65 is unclear without explanation and Clause 65 and 20.4 produce significant overlap and are at times in conflict.

If the Works, materials, plant or equipment are damaged by one of the special risks, the Contractor is to be paid for work executed, materials and plant damaged and any rectification work or replacement or repair of materials or equipment as required by the Engineer or necessary for the completion of the Works.

The broad wording of Clause 65.5 (Increased Costs Arising from Special Risks), “whenever or wherever” term used in the clause could give rise to a wide variety of interesting claims such as in the case where the explosion of a grenade in Mecca, leads to Moslem members of the Contractor's workforce on a project in Sweden protesting and taking a day off work by way of protest. Is the Contractor entitled to claim costs? It is reasonable to argue based on the loose wording that he is.

The Contractor is to be paid any costs of completing the works which result from the special risks and which would not otherwise be recoverable under the insurance clause prescribed by the contract. The Contractor is to notify the Engineer of such costs forthwith.

If war breaks out and materially affects the works, the Contractor is to continue to use his best endeavors to complete the Works unless it becomes unlawful or impossible to do so and until the Contract is terminated. The employer is entitled to terminate the contract by giving a notice to the Contractor. Yet still, the rights of both parties under Clauses 67 (Settlement of Disputes) are preserved.

Upon a termination on account of war, the Contractor is to remove his equipment and assist his subcontractors to do the same as soon as possible.

After such termination the Contractor will be paid for all work executed, materials on site, temporary works and for additional costs incurred including demobilization costs less the balance of any advance payments.

### **3.3.9. Clause 69, Default of Employer**

Clause 69 gives the Contractor a right to terminate his employment under the contract or to suspend or decelerate his works in the case where the Employer fails to pay a certificate within 4 weeks of the due date, or interferes with certificates or becomes insolvent or gives notice that for unforeseen economic circumstances it is impossible for him to continue, the Contractor has the right to terminate on giving 14 days notice. Yet still, during this 2 weeks period before the termination takes effect the provisions of Clause 67.1 (Engineer's Decision) state that the Contractor is expected to continue to proceed with the works [9].

After the 14 days notice, the Contractor is to remove all of his equipment from site but in terms of the temporary works and materials the Contractor needs to obtain the Engineer's consent pursuant to Clause 54.1 (Contractor's Equipment, Temporary Works and Materials) before removing them.

After termination, the Employer is to pay the Contractor for all work executed and all costs and damages associated with the termination of the project. The costs are not only limited with the provisions of Clause 65.8 (Payment if Contract Terminated) which provides payment for works executed, materials supplied or which the Contractor is

committed to purchase, sums committed for the completion of the works and demobilization costs but additionally the Contractor is entitled to seek recovery of his loss of profit included in the tender prices of the works that have not been completed yet by the time of termination.

Alternatively, if the Employer fails to pay a certificate within 28 days of the due date, in addition to his right to interest on unpaid certificates and as an alternative to termination, the Contractor may give 28 days notice and then suspend or decelerate his work. He shall be entitled to an extension of time and costs in respect of the suspension or deceleration. As the same wording is used in Clause 69.1 what is meant by "Subject to any deduction that the Employer is entitled to make under the Contract" is not clear. The clarification is of importance though because whenever the Employer cannot make any further payments to the Contractor he can rely on this wording and say that the deduction was due to his entitlement under the contract.

If the Contractor suspends or decelerates and the Employer then pays the certificate together with interest, the Contractor is no longer entitled to terminate and therefore is expected to resume normal working.

### **3.3.10. Clause 70, Changes in Cost and Legislation**

This Clause is intended to make provision for the possible effect of matters such as variation in the cost of labor and materials arising during the execution of the Works and of new or amended national and local laws and regulations introduced during or after the date four weeks before the tender date [8].

The net increase (or decrease) in the cost of labor and materials, consumables, arising after a date when tenderers can be assumed to have completed the computation of the rates and prices inserted in their tenders, should be assessed and the Contract Price adjusted in accordance with Part II accordingly.

It should be noted that this Clause is mainly dependent on the terms stated in Part II Conditions of Particular Application. Part II provides three alternative methods for dealing with the fluctuations issue such as;

- Deleting Clause 70 in the COPA and replacing it as ‘ The Contract Price shall not be subject to any adjustment in price in respect of rise or fall in the cost of labor, materials or any other matters affecting the cost of execution of the Contract’

This replacement generates no risk for the Employer for rise and fall and it is generally suggested to be appropriate for projects lasting less than a year. This is because a Contractor can not reasonably be expected to look into the future and estimate the price escalation on a long term contract, but if he is, it is not by some coincidence that the prices determined will be much higher than the Contractor would have normally given in the existence of a clause stating the principles of compensation.

- Compensating the Contractor’s direct costs in the existence of invoices for material, labor or consumables. The costs to be compensated are calculated by taking the difference between the invoices and the corresponding actual tender prices.

The inclusion of a clause of this type limits the Employer’s risk to the direct cost increase or decrease.

- Inserting a specific formula consisting of indexes defined by professional economists considering the consumer price indexes in the country where the work is to be performed.

A clause of this type removes all risk from the Contractor and transfers it to the Employer.

#### 4. CASE STUDIES

The commentaries provided in the previous section are further discussed in this chapter through three different real time case studies.

Table 4.1. Summary table for contractual terms of Ghazni Sharan Road

<b>Full Name of the Project</b>	Reconstruction of Ghazni to Sharan Road
<b>Employer</b>	UNOPS
<b>Engineer</b>	LBGI
<b>Date of Commencement</b>	23 April 2005
<b>Date of Completion</b>	18 October 2006
<b>Original Contract Amount</b>	14,516,720 \$
<b>Completed Contract Amount</b>	18,544,824,06 \$
<b>Scope of Work</b>	Construction of 4.0 m x 2 lanes = 8 m width DBST Pavement Road (63 km)
<b>Involved With</b>	Clause 40 Suspension

Table 4.2. Summary table for contractual terms of Kandahar to Herat Road

<b>Full Name of the Project</b>	Kandahar to Herat Road – Package III
<b>Employer</b>	USAID
<b>Engineer</b>	LBGI
<b>Date of Commencement</b>	6 June 2004
<b>Date of Completion</b>	11 September 2005
<b>Original Contract Amount</b>	48,348,356 \$
<b>Completed Contract Amount</b>	58,701,235 \$
<b>Scope of Work</b>	The reconstruction of 100 km, 11m wide road alignment including earthworks, drainage, bridges
<b>Involved With</b>	Clause 6 Custody and Supply of Drawings and Documents and Clause 17 Setting Out

Table 4.3. Summary table for contractual terms of Pul-e Alam to Ring Road

<b>Full Name of the Project</b>	Pul-e Alam to Ring Road Project (35 km)
<b>Employer</b>	UNOPS
<b>Engineer</b>	LBGI
<b>Date of Commencement</b>	18 September 2004
<b>Date of Completion</b>	11 February 2006
<b>Original Contract Amount</b>	6.016.199 \$
<b>Completed Contract Amount</b>	6.889.903 \$
<b>Submitted Claims</b>	5,300,000 \$
<b>Scope of Work</b>	Construction of 3.0 m x 2 lanes = 6 m width DBST Pavement Road (35 km)
<b>Involved With</b>	Clause 44 Extension of Time, Clause 40 Suspension, Clause 42 Possession of Site and Access Thereto, Clause 52 Valuation of Variations and Clause 69 Default of Employer, Clause 70 Changes in Cost and Legislation

It is important to note that the contract values at completion stated above do not include the claimed amounts which are still to be resolved as mentioned in the detailed description of the following case studies.

#### **4.1. Case Study 1**

##### **Clause 40 Suspension**

In Afghanistan during the initial phases of the reconstruction of the Ghazni to Sharan Road project for 63 km (8m wide) having an initial tender price of 14,5 million dollars, at 3 am on the 28th of May 2005, 3 rocket propelled grenades were fired at close range by insurgents at the project campsite. The grenades hit 2 partially completed camp buildings and narrowly missed the Engineer's sleeping quarters. The next day, the Engineer ordered a suspension of work under Clause 40 and the subsequent increase in camp security measures. The suspension lasted 28 days and an extension of time of 28 days was awarded with daily costs of \$34,870/day paid for the Contractor's idle staff and equipment.

## **4.2. Case Study 2**

### **(Clause 17 Setting Out)**

An experienced and successful Contractor knows that a project starts at its foundations. To locate any civil engineering structure properly accurate survey set out is the first step to be delivered in accordance with the Contractor's program.

Prior to commencement of any work the Contractor needs to do checks of the information produced by the Employer. This information is generally a site survey control point with x, y, z coordinates reduced to any appropriate datum. If the check reveals an error the Contractor will notify the Employer. Generally the error is simply corrected with a few hours unless the error is large or the location very remote.

For example a benchmark provided in İstanbul could be corrected in a matter of hours but in Afghanistan where there is no National Survey Control Datum and security is significant, it could take weeks.

During the construction of the Kandahar Herat Road in South Western Afghanistan for 100 km (11 m wide) having a tender price of 48 million dollars, Turkish Contractors engaged by the US Government to construct the road discovered that the permanent control established by the Employer during the project design had been deliberately destroyed by insurgents.

The Contractor gave a notification to the Employer stating that pursuant to Clause 17 (Setting-out) error had been detected in the permanent survey control provided by the Employer and that he was unable to accurately set out the Employer's design. The Employer directed the Contractor to correct the error. This required the Contractor to fly in specialist GPS survey teams from Turkey to make the site survey. The reinstatement of the permanent survey control took 6 weeks to complete for a total of 10 permanent benchmarks along the 100 km. This caused a project delay to earthworks activities on the project for which the Contractor claimed and was compensated for both the rectification costs of the permanent control and the additional costs for idle earthwork equipment costs. (\$350.000 for the rectification and \$1.2mil for prolongation costs)

### **4.3. Case Study 3**

#### **(Clause 6 Custody and Supply of Drawings and Documents)**

During the construction of Kandahar Herat Road project in South Western Afghanistan where the permanent survey control was discovered to be destroyed, it was also discovered that the project's geometric design was incorrect and that the temperature extremes in the Afghan desert rendered the 60/70 (the penetration grade classification that is suitable for average weather conditions) bitumen used in the pavement design subject to premature failure.

The project was in an extremely isolated location and was designed under very difficult conditions in the absence of any camp support, demining or permanent security control. Mistakes were made by the Employer's surveyors which later caused translation errors in the Employers design centerline in both the x, y and z position. The design was effectively useless.

The Contractor notified under Clause 6 that the project drawings were incorrect and that he was suffering delay and additional costs for idle equipment. Numerous attempts were made by the Employer to correct the drawings however the drawings were never resolved and the Contractor was directed to remap the existing alignment and generate a new geometric design. The design issue was resolved 6 months after commencement resulting in a delay of 6 months, however part of the delay was concurrent. On an adjacent project, quality problems resulting in the failure of the wearing coarse resulting in the Contractor delaying the mobilization of his crusher (initial project critical path) and his asphalt plant, (ultimate critical path) to the new site. The delay was concurrent and the crusher was delayed a total of 4 and a half of the 6 months.

The Contractor claimed that the dominant delay was the Employer's, while the Employer is arguing the Contractor was unable to commence even if there was a design complete.

The Contractor's claim is yet to be resolved and is valued at over \$10 million dollars.

#### 4.4. Case Study 4

**(Clause 44 Extension of Time, Clause 40 Suspension, Clause 42 Possession of Site and Access Thereto, Clause 52 Valuation of Variations and Clause 69 Default of Employer, Clause 70 Changes in Cost and Legislation)**

Pul-e Alam to Ring was a small 6million dollar road project in Afghanistan with contract duration of 316 days for completion. The alignment was 35 km long and 6m wide and was bordered by a mountain range to the west and a river to the east. The road was very narrow and passed through a number of small Afghan villages and followed the valley floor through highly cultivated orchard and wheat crop areas.

At tender, the Employer and the Contractor in highly compressed time frames and poor security conditions determined that the alignment needed 77 culverts/cross drains.

The following is a brief chronology of the problems the project confronted;

- i. A letter of acceptance was issued to the Contractor on Sept 1<sup>st</sup> 2004.
- ii. 28 days later, in accordance with the contract, the Contractor notified the Employer that he had not received his notice to proceed and was being denied access to site.
- iii. The Employer did not have a financial agreement in place with the client and delayed the issuance of the notice to proceed for a further 21 days.
- iv. After the notice to proceed was issued the Contractor's Engineers identified significant additional drainage and earthworks that would be required.
- v. A decision was made by the Engineer and the Contractor to reprogram the work and work through the winter, which had previously not been allowed by the Contractor.
- vi. The winter of 2004/2005 was the worst on record in Afghanistan. Heavy snows, freezing temperature and torrential spring rains did not allow work in the winter and most of the spring.
- vii. As a consequence of the torrential spring rain the Engineer determined that the alignment needed an additional 150 cross drains and low level crossings which were directed over the course of the next construction season, May to November.
- viii. Riots erupted on the alignment endangering the lives of project staff. Equipment was burned and destroyed and a project suspension was directed by the Engineer.

- ix. The amount of cross drainage and retaining structure directed continued through 2005.
- x. The Engineer granted an EOT of 65 days for exceptional adverse weather and 6 days for riots. The date for completion was pushed into a second winter without consideration for the additional directed work.
- xi. Work continued in a highly disrupted manner because of the access restrictions created by the enormous drainage demand in the 36km alignment until the second winter- 2005/2006- when temperature forced work to stop.
- xii. Work resumed the next spring and the Engineer awarded an extension of time for a further 194 days.

In this one project the Contractor was subjected to enormous change. The initial delayed access to site, (Clause 42) followed by a severe winter and disruptive spring rain (Clause 44), to suspension due to riots (Clause 40), followed by significant and fragmented direction to vary the work (Clause 51). All these effects culminated in a 299 day extension of time, of which 34, 6 and 194 were compensable under the contract and 65 were arguable under the Law Governing the Contract.

Under Clause 42.2 entitlement for time and cost was clearly established for the delay in the notice to proceed. Project mobilization was on the project's critical path at this phase of the contract and clearly entitled the Contractor to additional time equal to the delay.

In general, costs are generated by any Contractor's resources that remain on standby and that cannot be transferred to another project or stood down. The Contractor has a common law obligation in this circumstance to mitigate the Employer's costs by doing everything possible to defray cost by off hiring, standing down or transferring resources wherever possible (but in this case since the works were to be executed in a country like Afghanistan there was no chance that the Contractor would have the chance of getting all those transferred resources back once he off hired them) In such cases, good project management is required and meticulous record keeping and clear communication with the Engineer is necessary on a daily basis to establish costs that are reimbursable.

Under the provisions of Clause 44.1 (Extension of Time for Completion) Entitlement to delay for exceptional adverse weather was established by the Contractor's tender and approved program which had allowed time not to work for the first winter as the allowance for adverse weather. The spring rains that followed were exceptionally adverse and resulted in the Engineer awarding 65 days without costs.

Concerning the provisions of Clause 40 (Suspension), riots over the election period in Afghanistan caused damage to the Contractor's equipment (Clause 65.5 (Increased Costs Arising from Special Risks)) and resulted in a full suspension of works for which the Contractor received an extension of time, replacement costs for the damaged equipment and 22,550/day stand by costs.

Under the provisions of Clause 51&52 the amount of directed additional work was significant and resulted in the Engineer awarding an extension of time of 194 days. The Contractor claimed prolongation costs on the basis that the rates contained in the contract were no longer appropriate because of the additional time required on site and because of the loss of productivity suffered because of the additional work. The Contractor had claimed extended off site overhead, additional lump sum items within the contract BOQ and the standby of his staff and equipment over the second unplanned winter which he had never allowed in his original tender.

The Contractor has recovered \$1,45mil for this claim and has a further claim for disruption/loss of productivity (Clause 52.2) & material escalation in the extended period pending.

#### 4.5. Case Study 5

##### Clause 70 Changes in Cost and Legislation

When clause 70 is expressed clearly within a contract, there is limited scope for claims. It is only in the case where rise and fall is “silenced” that claims may arise, as in the case where clause 70 is deleted by Part II of the contract and not conditioned by a replacement clause.

In this case if Part II is not amended, a contractor could argue that the contract is silent on the issue of rise and fall and that a claim maybe submitted under the contract. Further if the contract is varied for any additional work that the contractor performs he is well within his rights to argue that the rate contained in his tender submission is no longer appropriate in accordance with clause 52.2 (Power of Engineer to Fix Rates) and that the contractor wants a new rate to include the effects of the escalation.

In the event that the contract is silent, he could argue further that clause 52.2 allows the Engineer [in his impartial role] to fairly re rate all of the rates affected by the escalation.

However, if Part II of the contract expressly denies entitlement by stating there shall be no rise and fall, a contractor will have far more difficulty in succeeding with a claim.

This was experienced by Turkish Contractor engaged to construct the Pul-e Alam to Ring Road in Afghanistan. The initial project duration was one year however a serious rise in raw materials was experienced and this lead to a significant number of project delays resulting in 299 days extension of time. (194 days for extra work, 6 days for riots and 65 days for exceptionally adverse weather conditions and 34 days for denied access to site).

Clause 70 of the GCC 70 was deleted in the COPA and was not replaced with the clause recommended in FIDIC’s Own Guide. (Clause 70 be deleted and replaced with the clause *“No rise and fall shall be considered under this agreement”*)

In the case of the extension of time due to additional work, Clause 52.2 (Power of Engineer to Fix Rates) provides that in the extended period, the Contractor was incurring additional costs he had not planned and allowed for rendering the rates in the contract inappropriate and therefore subject to re-rating under the clause. Further, the escalation experienced in the extended period was outside the Clause 70 effects and therefore should be considered as an additional cost, subsequently also rendering the rate inappropriate.

Accordingly in the case of the 194 days extension of time for additional work, Clause 52 provides that the Contractor's increased costs be compensated by re-rating the items impacted and new rates determined and agreed. Relying on all these reasons, the Contractor has submitted a \$1.4 million claim to be evaluated.

For the balance of costs incurred as a consequence of escalation, entitlement is not as clear. Claims are currently before the Employer arguing that Clause 70 is silent, and that if it were the Employer's intent never to consider compensating the contractor for exceptional rise and fall, given that he had the opportunity at the time of tender to simply insert FIDIC's recommended words. Furthermore a contractor cannot be reasonably expected to allow for unforeseeable events.

In the case above fuel and cement in Afghanistan doubled in the time frame covered and in is well outside any foreseeable rise. This claim is still being evaluated at the present time and the decision is hard to be made since it will not only affect this project but all the ones taking place in Afghanistan during the same time period.

## **5. HOW TO MANAGE CLAIMS IF THEY ARE INEVITABLE?**

Given that no contract is perfect in assigning risk and that there are always contradictions in the perceptions of the terms of the contract between the Employer and the Contractor, variations and claims become inevitable. When changes to the scope of work are incorrectly managed, they invariably lead to the delay and disruption of ongoing activities which may cause overruns in time and/or costs resulting in claims under the contract.

At the outset of any construction project, when goodwill and trust are usually at their high points, the parties often neglect to record in writing many of the key agreements and understandings reached between them. Later on in the project, when problems start to arise, trust and goodwill often give way to the financial realities of potential construction claims and failure to properly record and document construction projects can be fatal in any claim. It should always be kept in mind that written agreements and documentary evidence will almost always outweigh oral evidence and alleged verbal agreements therefore each party must be alert to the importance of good record keeping during the execution of a project.

Generally both the Employer and the Contractor are willing to resolve the claims together without involving a court or arbitration because of the high cost of doing so and the potential to incur a reputation for litigiousness or claims oriented behavior. Even if amicable settlement cannot be achieved and disputes reach litigation, contemporary records will be the principle source of proof of the facts which leads to the question on how to maintain good records.

### **5.1. Contemporary Records Storage and Retrieval**

Record keeping involves a considerable amount of paper in most cases. As such, the first thing that is required is an appropriate and retrievable system of filing indexed and cross referenced. Appropriate categories must be sorted out for accessibility and a degree of orderliness. No matter where the originals of field records or the originals of contract

documents are kept (either in the head office or in the project office) the important thing is that all top level personnel associated with a project must know where the originals are and at the appropriate time, be able to make them available for negotiation purposes or for court appearances [11].

## **5.2. Records to Be Kept at Different Stages of the Project**

There are a variety of records to be kept during different stages of construction. These records are known as “contemporary records” and are generally the only acceptable form of record admissible in a litigation or arbitration. A general list of records that should be maintained on site and compile as events occur are as follows [12];

### **5.2.1. Prebid Records**

Records of the Invitation to Bid (newspaper, letter), site visit notes and photographs, minutes of any prebid meetings, addendums issued to the bid, proposed schedules, estimates including work sheets, project log, and all addenda and logs of telephone conversations should be kept prior to bid.

### **5.2.2. Bid Records**

The Contractor should have copies of all papers submitted, together with all supporting bid calculations, quantity takeoffs, subcontractors' and suppliers' quotes, estimated productivity of labor and equipment, and proposed project schedule detailing the projects critical path. Where subcontractors' prices and suppliers' prices were received by telephone, there should be a written memorandum of each quotation together with date, time, and names of all parties involved. There should be a record of the receipt of all addenda received and any consultant reports. The names of the other bidders and the amounts bid by each should be recorded and kept in file.

### **5.2.3. Precontract Records**

Every communication between an employer and a contractor should be recorded in writing. Records of minutes of negotiation meetings, minutes of qualification hearings where applicable, revised project schedules, and records of any changes in costs that were negotiated should be kept. Any decisions agreed upon by the Employer / Contractor / Engineer should be included. As part of any change, all calculations should be maintained as a permanent job file. Photographs and notes of any site visits during this period should also be stored.

### **5.2.4. Contract Documents**

The original contract documents should be kept in a secure file and controlled under the contractor's quality plan (not to be used as working copies); a register is to be maintained and amended as variations are directed by the Employer for each issued set of "controlled" contract documents.

### **5.2.5. Construction Records Maintained During Performance**

Minutes of a preconstruction conference should be included. Such conferences are generally held to the start of work. Copies of job schedules (including revisions) should be stored. Records should be made of all verbal instructions and field orders.

Job daily diaries, including those of foremen, field superintendents, and management are also part of the record. These form a record of what happened on the job each day, visitors, weather, materials delivered, trades working, names of all men working, equipment and material registers and similar. All diaries, including personal diaries, should be readily accessible. Parties maintaining these should understand that under the freedom-of-information laws and discovery rules in litigation, the contents of those diaries are all available to the other side.

The fact that a diary is kept at home does not preclude its being entered into evidence during a pretrial questioning, court proceeding, or arbitration hearing. Essentially, any

contemporaneous record, in whatever form, kept in connection with the project, by anyone, is available to all parties. These can even include tape-recorded job "diaries." If it can be established that such were a part of a systematic procedure on the job and not a random instance, such records can possibly be introduced under the doctrines of "business records"

### **5.3. Details of Records to Be Kept**

#### **5.3.1. Correspondence**

Unlike the other categories of records like notes, diaries, invoices, meeting minutes and similar, letters convey accurate information. The recipient cannot say at a later date that he was unaware of a troublesome situation. To eliminate the possible denial of the recipient, a return receipt certified mail or signed received by the recipient should be used where matters of significant importance are being discussed through correspondence.

Letters should be written to record the facts surrounding all events that could potentially impact the project. Even in the most harmonious of working situations, verbal suggestions, changes, promises, or complaints should be confirmed in letter form and copies of such letters sent to enough people to circulate that knowledge. All correspondence should be dated and numbered for being logged into a central register.

The principles of good letter writing must be maintained at all times and it is important that the recipient is informed about why that letter was written verbally if possible to maintain respectful relationships, whether it is for information or a direction or whether it calls for a reply within a specific date. If a continuing situation is being referred to than the same basic descriptive terms in each letter should be used and the previous correspondence on the same subject should be referred by date. A good system of keeping track of original correspondence is to number each sequentially. The numbered letters can then be entered in a computer data base and quickly accessed when questions arise. It is also important that the receipt of letters is acknowledged i.e. "We acknowledge receipt of your letter dated 12 March 2007, ref XYZ/HQ/034 and advise that....."

### **5.3.2. Photographic Records**

Both the Employer and the Contractor should maintain a register of photographs of the work at every stage commencing with the tender photographs of the site. Specific progress photographs on a pre determined time basis should also be included to develop a progress log to completion. In addition, any unusual conditions or situations that arise are also well advised to be recorded. It is imperative that all photographs be dated and that the location and the photographer be noted. It is also helpful to include a person or some object of known dimensions in the photograph to give a sense of scale so that it can be used as a proof in documenting a claim or change. Obvious candidates for the photographic records are changed site conditions, damaged equipment or materials, denied access to site, flooding and heavy snow. Random shots are also essential. Some detail in the background may buttress a point in contention years later, for example, that the steel re-bars are placed at a particular date during the work. A photograph may clarify a condition of the work during construction that is not observable during a claim unless test holes are cut into the concrete [12].

### **5.3.3. Shop Drawings**

The shop drawing log should be maintained accurately, with any delays in approval duly noted and, where possible, explained. These drawings can be one of the most critical aspects of a project; and if improperly handled, they can create major problems and delay on the project.

Shop drawing reviews are subject to misuse. Contractors have been known to make changes to the work and the intent of the design without highlighting the point, or possibly, without recognizing that they have changed the design. In turn, architects and engineers have been known to effect design changes with resultant changes in construction costs in the process of approving shop drawings without acknowledging (or again, recognizing) that they have done so. Neither intentional action is professional unless it is spelled out to the other party and the change noted. If one party believes the other has made a change, it should be discussed at once in accordance with the contract terms.

As-built drawings should be kept up to date because these might prove to be particularly important in the claim situation that involves changed conditions, increased quantities, or a failure.

#### **5.3.4. Job Schedules**

Job schedules and actual progress can be charted in several ways, such as S-curves that plot money against time, simple bar graphs that indicate progress in various separate categories of work, and the critical path method (CPM). Progress may also be recorded with the aid of a computer on large complex projects.

Particular effort should be made to maintain accurate files of these charts and of any revisions made because a clear, comprehensive schedule facilitates early analysis of delay and acceleration impact and minimizes claims by allowing appropriate time extensions as variances occur. In the final preparation for defense of a claim, these charts can prove to be the most telling piece of evidence to prove or disprove a case. They are essentially the final products of all documentation. Actual work completed can be overlaid against the original schedule and the causal relationship between the segments analyzed. In this manner impact effects can be plotted, and their effect upon costs down the line can be measured. For example, a steel strike, may delay one segment upon which another depends. This in time may cause another portion of the work to be performed during the winter, which in time will require different equipment than that originally considered.

It should be noted that CPM charts is a sophisticated analysis method and deserve careful scrutiny and review.

#### **5.3.5. Employer's Records**

While the basic records kept by an Employer or a Contractor are essentially the same, the Employer has additional records that he keeps as a matter of form. These include inspectors' reports, concrete form approvals, borrow pit approval, field direction or clarification, safety observations and direction, and administrative decisions (such as

permits, easements, transmittal of shop drawings, approval of material, and payment calculations).

### **5.3.6. Change Order or Variation Files**

For each change that occurs or is believed to have occurred during the course of the work, a separate self-contained file should be maintained that includes the order, relevant correspondence, a record of all negotiations concerning the change, estimates of cost, and the calculations on which the estimates are based. Where possible, photocopies of the appropriate sections of the specifications and the contract drawings would make the file more complete and simplify work during negotiations. Change orders are of special importance because every change order amends the existing contract, changes the original baseline and it is a formal document proving that each party has agreed on special terms stated on the document. In the existence of any problems they will be the leading documentation while defending the rights.

### **5.3.7. Daily Reports**

Records should be kept for daily staffing of the project, divided into trades and subcontractors, part of which should include the time cards kept on the project. Time cards are one of the basic sources of data concerning a project.

When there is a claim situation, it is desirable to have both the Employer and the Contractor agree as the work progresses upon the classification of labor, the man hours, the equipment used, and any material involved in the item in dispute. A sample daily report form is illustrated in Table 5.1.



### **5.3.8. Payment Requisitions**

The methods of payment are covered by the contract, and while many methods of payment are provided for, the two most common are:

- Payment at predetermined intervals of time in the form of an interim progress certificate as is the case in FIDIC based templates by measured quantities or estimates of completed percentage of completion.
- Payment at completion of a certain phase of the project or of a certain dollar amount of work.

Generally, the payment is made on the basis of a certified certificate submitted by the Contractor to the Employer. Both the Contractor and the Employer must agree upon the work performed during the payment period. Calculations for these agreed estimates should be kept by the Contractor because they are one source of a future reconstruction of the job and the preparation of an as-built CPM chart.

### **5.3.9. Minutes of All Meetings**

Minutes of all meetings should include time and place where the meeting was held and those in attendance. The minutes should indicate whom each participant represents. If they are continuing meetings, it would be desirable to assign a number to each set of minutes to avoid the possibility of a set being overlooked or mislaid. These minutes should be kept in the same form for each meeting.

Prior to the meeting, an agenda should be prepared and distributed. A job meeting should cover such items as progress, any delays, effect of strikes or of material delivery delays, staffing of project, start of a new operation, status of change orders, status of shop drawing review, information required from the Employer, information required from the Contractor, and the need for clarification of drawings or specifications.

Change orders or agreements can start at such job meetings. Their insertion in the minutes is the beginning of documentation on a particular change order or agreement. It

would be desirable, however, that change orders or agreements be followed up by letters or written orders.

Several methods may be used to obtain concurrence with the minutes by those in attendance. At the following meeting, the opening item on the agenda can be the approval or changes to the prior minutes; or both parties can sign the minutes when they have been approved or concurrence has been reached. A sample minutes of meeting form is illustrated in Table 5.2.

#### **5.3.10. Field Reports**

Daily field records should be kept of such items as cubic yards of concrete delivered, truckloads of earth or rock removed, truckloads of sand fill, deliveries of structural steel, shift progress in a tunnel, and the inspector's reports on the work including the location that he inspected each day. Daily reports should also include areas where work was performed, estimate of production, problems, visitors, weather, lost time or reports on inefficiency, and similar remarks [12].

#### **5.3.11. Weather Records**

It is essential that daily weather records should be kept. In cases of delays attributed to weather conditions, the National Oceanic and Atmospheric Administration can provide reference point data. It should be noted that the additional costs resulting from the delay due to the exceptionally adverse weather conditions are generally not compensated under the terms of most standard forms of contract because the delay is assumed to be a neutral one in which each part bears his own cost. (The Employer does not charge any liquidated damages and the Contractor bears his costs due to the delay)



### **5.3.12. Material and Equipment Records**

Delivery dates of all materials should be kept including the delays whenever they exist. All quotations, purchase orders, invoice, and similar documents should be kept on file. A record should be kept for damaged material or unsuitable supplies. Photographs may be used to document such damage. Any storage required for materials or equipment should be noted, especially related to a change or delay of work. Unavailability of material and the reason for it should be documented. Cost of equipment on the project should be recorded.

Idle or extra time for expensive equipment can be a major cost in a claim. Ripple effects of changes involving equipment can be a significant factor. Storage, removing such equipment from another job, work under adverse conditions, or simply the delay caused by moving bulky equipment to a different location on site should be recorded.

It is essential that a record of the types of equipment used each day and the number of hours these are used should be kept. A full description of every piece of equipment should be available in an equipment register or a similar record. When equipment is being repaired, the nature of the breakdown and the repair work should be recorded, as well as the time and materials used for repair.

### **5.3.13. Accident Records**

The circumstances and the details of each accident that occurs on a job should be described. The amount of detail in connection with each accident should be in direct proportion to the seriousness of the accident. In addition, a record should be made of measures taken to insure safety. These can include regular meetings, use of films, and use of lectures.

Generally, accidents are entirely an internal problem of the Contractor, but there can be situations where accidents or potential accidents involving employee safety can have a major effect upon job progress, and thus lay the groundwork for potential delays and claims. For example, if a tunnel becomes unsafe to the extent that miners will not go into

it, special rehabilitation work may provide the basis for a claim. This may involve the installation of special temporary steel support and cause not only a dispute as to the method of payment, but also a further delay due to the time required to set such steel. During such a time, a sizable work crew, together with equipment, is not productively engaged in proceeding on the tunnel. A sample accident report is illustrated in Table 5.3.

#### **5.3.14. Delay Records**

Any delays due to strikes, weather, lack of access to the site, late delivery of materials, unavailability of materials, accidents, or any other reason should be kept in a delay file. Specifics should be listed and impacts recorded on as constructed schedules.

For instance, in the case of a strike, the dates when work stopped, when the strike was settled, and when the work was resumed all should be spelled out in detail. The effect of the strike whether or not it effected the entire project should be noted. In the case if it did stop an operation, what was the effect of this on the overall progress should be determined. Additionally, strikes elsewhere that affect the work should be recorded. A national steelworkers strike could have an effect upon the project.

#### **5.3.15. Records Required From Subcontractors**

The Employer and the Contractor can require of major subcontractors that similar records be kept on labor, equipment, delays, and similar matters. Naturally, if the subcontractor is a party to the claim, his records would be part of the claim, and he would be responsible for his own record keeping.

Table 5.3 Sample accident report

<b>ACCIDENT REPORT</b>															
Arrangement Date:															
WORK PLACE	Headquarters:														
	Construction Site:		Project Title:												
	Title:														
	Address:														
	Number of Staff / Workers:	Male		Female											
Accident Date:				Accident Time:											
Place of Accident:															
Person / Department that Person(s) incurred accident is bound to:															
Estimated material damage of accident:															
Person(s) that incurred accident	Name(s) & Surname(s):														
	Insurance Registry No(s):														
	Age(s):														
	Job starting date(s):														
	Task(s):														
Outcome:		Slightly Injured		Loss of Organ		Heavily Injured	Dead								
Number of workers, who got a permission of rest, of injured workers as a result of accident		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">1 day</th> <th style="width: 25%;">2 days</th> <th style="width: 25%;">3 days</th> <th style="width: 25%;">More than 3 days, or open rest</th> </tr> </thead> <tbody> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						1 day	2 days	3 days	More than 3 days, or open rest				
1 day	2 days	3 days	More than 3 days, or open rest												
Full Names of Witnesses:															
Reason of Accident and Type of Occurrence:															
Administrative Approval:															

### **5.3.16. Overhead**

Records of overhead costs on the job over a period of time are necessary if a claim is filed. Therefore, they should be kept as a matter of routine for both on site and off-site contributions. This includes the time of all personnel, whether they are at the job site or in a headquarters office when they are doing work related to the project. It must include the costs of site buildings, utilities, telephone, supplies, and communication requirements. The items that can be considered to be overhead are numerous. Overhead can include any costs connected with the project that are not specifically chargeable to an item of work. Whether or not an item is overhead is usually dependent upon the manner in which a contractor keeps his books.

### **5.3.17. Time Cards**

Most companies adopt a cost control system that requires that time cards on a project are coded by the labor classification of the workman and by the type of work done. Each worker has a particular code; for example, every carpenter will be in the 700 series, with the carpenter's helpers in the 800 series and the laborers in the 900 series.

Every time card should include the date, the shift, the code number, and name of every workman in that particular crew; the number of hours worked; the items worked on; the location; and the equipment and materials used. The time card should provide a space for the foreman to make his estimate of production, and to list any problems, visitors, weather, lost time, or inefficient time.

## **5.4. Claims Management Procedure**

Claims have a tendency to escalate with time. The choice of contract type is the first step in establishing the environment in which claims are likely to be filed. Most claims are made under lump-sum contracts since the price of the project is fixed; each change increases the cost and decreases profit for the Contractor unless an appropriate adjustment is made to the contract [5].

As discussed in section 3.3 of this submission, “How Does FIDIC 4<sup>th</sup> Edition Deal with Claims?”, it is widely accepted that most claims arise irrespective on the form of contract as a consequence of delay, disruption, unplanned escalation, directed changes and extra work, variations in quantities and changed site conditions. The contract adopted by an Employer should contain sufficient detail to provide a concise description of his expectations as is possible while making clear the consequences during performance.

In general, preparation of a fair contract clearly indicating both parties’ rights and obligations and a means of resolving problems will be successful in producing a smooth, productive, contract management and productive work performance with the inherent advantage of mitigating the escalating of minor claims into disputes as discussed earlier in the previous sections [5].

In the event a claim arises, a typical sequence of events resulting is as follows;

#### **5.4.1. Notice Provisions**

In order to be able to validate a change or a claim the initial step is to recognize the existence of a claim and notify the Employer as soon as possible. Once notified, the variance must be analyzed against what was allowed at the time of tender by comparing it with the contract baseline of scope, schedule and tender conditions. Once this has been done, detailed particulars explaining the claims are to be compiled and submitted to the Employer.

To be successful in any claim, a contractor must establish the legal or contractual basis of the claim and document the factual grounds on which the claim is to be based with contemporaneous records. The Contractor should notify the problem and advise Employer that further program delays at this stage could lead to further damage down the line. A contractor should quantify the full effects of the event in lost time and additional costs as soon as is reasonable possible to do so and submit them to the Engineer or the Employer. At this point the submitted calculations are interim estimates based on the Contractor's immediate investigations.

The Contractor should be certain that the notice is timely and that it is presented to the nominated individual under the contract. If all facts are not available when the first letter is written, others can be added in follow-up letters. It is of the highest importance to provide timely notice to the Employer so that he may take steps to mitigate project costs and so that a Contractor is not denied entitlement that precludes recovery of either time or costs.

It is the Employer's responsibility to acknowledge such letters promptly. Even if the reply indicates only that the matter is being looked into as the intent to cooperate has been established. This can be very important later on should the situation become more complicated.

All parties should keep separate files for each claim, and if possible, agree on a numbering or other identification system to facilitate correspondence and access to information in the future [12].

#### **5.4.2. Preparation**

Preparation of any claim by the Contractor must be clear, comprehensive, straightforward and containing detailed explanatory charts and graphs with a nontechnical language so that any person in the Employer's organization can understand the issues. The claim must follow the development of the events and logically conclude on the basis of the material presented. It should be thoroughly documented and the pricing approach must be realistic and in accordance with any contract provisions. The Contractor must accumulate the justification for the claim under the contract terms, along with information on its material costs, labor costs, and all other costs, plus the effect of the claims situation on other phases of the project. There may be a considerable time gap between the first step and the second. If the Contractor can assemble his justification quickly, the Employer sometimes agrees to make partial payments while the claims paperwork progresses. This is not unusual on major claims where a major delay in payment to a contractor could lead him to financial difficulties. Clearly, when this happens, the Employer is acknowledging to some extent that the claim is justified.

As the work progresses for which the Contractor is claiming additional payment, copies of the appropriate labor time cards, additional materials, equipment, tools and supplies, overtime costs, and other items outlined in Section 5..2 Record Keeping, should be kept in the file. This information should be furnished to the Employer through the appropriate party as provided in the contract.

At the same time, the Contractor must continue buttressing the legal arguments for his claim.

#### **5.4.3. Assembling The Claim**

In assembling the claims there are two elements important which are the legal justification and the cost data. If the Contractor has a sizable staff that handles large dollar volume construction work, much of the cost data can be assembled in-house. For smaller firms, or for complex claims, the Contractor may employ a claims consultant.

Assembling a claim is a team effort. If the claim is complex and an attorney is involved, he should assemble the final document, or at the very minimum, review the final work assembled by others due to the fact that the expense of having an attorney document and prepare a claim can be high. It is generally more economical to retain a claims consultant to assemble the data and then retain an attorney for the final product. As an alternative, the attorney may retain the claims consultant.

The level of documentation and justification assembled for a claim depends on several factors among which the complexity of the claim and the dollars involved are most important. The needs and requirements of the Employer are also important. It must be noticed that certain public agencies may demand more documentation than others.

The ability and resources of the Employer are other considerations. Certain agencies have better reputations than others in claims processing. Some Employers don't have the manpower to analyze a massive amount of data. Others have the staff to adequately review a claim.

The processing of a claim, timely or untimely, does not affect the progress of the work. There are exceptional cases where the lack of payment is a hardship to the Contractor and can force him to slow down or into default or even bankruptcy. The basic contract agreement provides that a contractor must proceed with the work, invoking the contractually specified disputes resolution procedure as his sole means of relief unless it is legally or physically impossible to do so.

The below listed items are some other points to be kept in mind concerning the claims process.

- The Employer can reject the claim as unacceptable. This may happen whether or not the claim document is unsatisfactory, but grounds for such action should be avoided. The claim should be made clear, concise, and thorough. The presentation of the claim should indicate that the claimant means business.
- The opponent should be sized up carefully. To carry the analysis one step further, some Employers may have a reputation for emphasizing certain aspects of claims. It is important to familiarize with what kind of documentation the Employer wants and the information and detail he requires on quantities, costs, productivity, labor, and equipment rates. Whether or not he needs receipted invoices, or notarized or certified payrolls is important as well as his payment basis for fuels and repairs, for tools and supplies.

If the Employer in question has a litigious reputation, the claim should be prepared with the thought that the judge and jury may be the final audience for the evaluation.

#### **5.4.4. Calculating The Value of The Claim**

There are many approaches to calculating damages. Basically, what the Contractor wants to establish is the difference between what the job would have cost without the condition that gave rise to the claim and what cost was due to the claims situation.

A contractor knows what the job actually cost if he kept basic cost records, and he should be able to document every amount spent. The problem is in determining what it would have cost without the claim situation and in convincing the Employer that these figures are accurate.

The difference between the bid price and the actual costs is not a sound basis for establishing damages because the bid price will rarely be accepted as gospel. The variations in bids presented by competing contractors for the same project show that there is a definite difference in opinion as to what a particular portion of the work will cost.

While calculating the claim, there are objective aspects of the added costs that should be easy to quantify if good records have been kept which are labor costs, supplies, materials, equipment costs, field office expenses, and similar.

There is a second category of costs that is less objective which might include allocation of job-site and main-office overhead to the costs of the work change, the inefficiencies of work forced into winter months or rainy seasons, limitations placed on access to the site, and occasionally the interest on capital borrowed by the Contractor to perform this change in the work.

Finally, there are items for which there are no precise calculations. Examples might be the determination of the cost of change in the quality of supervision, of lowered morale on the job, of a change in the learning curve of workers due to the change in the work, and of the need for increased manpower or equipment on the site due to the claims situation.

Thus, actual labor costs, payroll records, and material expenses are only the beginning of the work needed to document a complex claim [12].

#### **5.4.5. Documenting The Claim**

Although the claim structure should be based on one side's estimate of who will read it and on who will make the final decision, depending on the complexity of the change, the claim document may have a format including the following sections;

- Letter of Transmittal
- Title Page
- Table of Contents
- Introduction
- Executive Summary (in the existence of complex claims)
- Chronological Narrative of Claim Development
- Major Issue Discussions
- Schedule / Delay Analysis
- Pricing Analysis
- Contract Analysis
- Special Reports or Analysis
- Supporting Documentation

An executive summary that is brief and persuasive should be prepared. Time and effort should be put into this since it is the broad brush stroke description of the claim. Additionally, the executive summary is the first impression of the claim therefore it should give the reader a clear concise picture of what the claimant wants and why he is entitled to it. The next section of the claim can be an enlargement of the summary, including all the calculations, backup material, correspondence, and other documentation.

- The claim presentation should include photographs, charts, and any other appropriate visual evidence. These can be more persuasive than pages of text and will assist reviewers who have not been to the job site.
- The approach of holding back any information with the idea of saving a compelling bit of evidence for the "perfect moment. " is not helpful because if the Contractor believes that he has overwhelming proof of the merits of his case, he should present it as early as possible since the other party may concede immediately and save both sides a lot of time and money.

- The claims presentation should include statements, and if possible, documentation, of the steps taken to mitigate the condition that led to the claim. Telephone calls, letters sent, and meetings held should be outlined.
- The cost documentation of the Contractor must be credible; calculations must be logical and available to the Employer. Pages of formulas may be impressive, but the result must be reasonable.

In each of the steps discussed above, there should be continued communications between the parties: telephone calls, letters, and meetings. This communication provides opportunities for early settlement. In a situation in which the dispute drags on, such communication provides opportunities for documenting that each side knew or was informed of the other side's actions. And at the very least, it provides the vehicle for both sides to check their positions on the facts and figures so that misunderstandings don't occur.

#### **5.4.6. The Initial Meeting**

After the Employer gets the notification of a potential claims situation, generally an initial meeting is held. The first meeting during the negotiating stage is usually an informal one where each side tries to evaluate the position of the other and the degree of seriousness that the other attributes to the particular claim.

The principal purpose of this first meeting is to establish procedures, state positions, and work toward a meeting of minds. Major areas of agreement should be determined, major areas of disagreement should be highlighted, and a middle ground where neither side is convinced should be ascertained.

Coming to the negotiating table may be the beginning of an extended process where experts with different purposes and viewpoints act in good faith in order to arrive at an equitable and legal settlement.

At this initial meeting, both sides walk through the claim. There should be a serious attempt to agree on the facts. If the facts cannot be agreed upon, an acceptable method of determining those facts should be established. For example, if weather is an important factor, there are several sources such as job records and the National Weather Service that can provide documentation. The parties should agree on which data they will accept. If the type and use of equipment on the site at a specific time is important, parties should agree on a method of determination acceptable to all.

A second and important function of the first meeting is that it allows each group to evaluate the other. Parties can attempt to analyze the other side's strategy. Here are some points to be kept in mind;

Even at the first meeting, it is important to be thoroughly prepared. The Contractor should have a plan and decide beforehand who is going to speak and when. A team leader should be selected. It must be made sure that everyone on the team knows who that person is. An outline should be prepared, listing the important items that should be covered at this meeting.

Who comes to the meeting? It is courteous to inform the other side of the approximate number of people that will attend the meeting. Additionally, it is well worth the effort to send a list of the people who plan to attend the meeting. If the Employer will be represented by a vice president, then the Contractor should certainly have the opportunity to have representation of equal rank.

Two people are essential. One is the person who can speak for the firm with authority. The other is someone who has actually been on the job site. Failing the latter, there must be someone who is intimately involved with the project and knowledgeable about the problems.

Both sides should know before that first meeting how much or how little they will settle for. They must have a high and a low figure in mind from the start.

The Contractor must be flexible. As the meeting progresses, he must be capable of adjusting the presentation according to his evaluation and perception of the other group.

In the existence of a personality conflict, forces must be regrouped as quickly as possible before the next meeting, and if possible, during the continuing first meeting. A private meeting between the two principals can also resolve this sort of conflict by removing the sources of friction, or by other mutually agreeable means.

The Contractor must be tactful and be ware that an amicable yet still factual approach may resolve the matter in less time and at less expense.

#### **5.4.7. Formal Negotiations**

The closing item of the initial meeting should be to establish the time, place, and the agenda for the next meeting. There should also be some agreement about who will attend that next meeting, and an agenda should be at least outlined.

Parties should aim at resolving the claim in that second meeting. At the very least, they should aim at deciding at that time whether agreement can or cannot be reached. If it cannot, the claim should move to the next level of decision making.

In big-money and more complex claims categories, it is not unusual for a series of meetings to be held. Many of these will be at staff level for the purpose of agreeing on data and matters of fact. The final negotiations will be in the hands of the principals.

These formal negotiations represent the final effort to come to agreement before submitting to a higher, outside authority. The participants need to be skillful tacticians operating under some prearranged strategy.

The financial aspects of the claim should be investigated as well. It is important to know whether the Employer has the money available or requires finding new financing. Similarly the Contractor should decide on whether or not he needs cash for immediate financing.

The fact whether or not the other party has retained outside counsel and a claims consultant is another important factor. If it is the case, the reputations of these individuals should be checked, too. Neither side knows what facts the other has in its arsenal. Parties to the negotiations, including counsel and consultants, may have written papers themselves on similar subjects that could be relevant to the claim.

In negotiation, advantage is a psychological matter, and a great deal depends on one's perspective. The following are principles that apply to the later stages of negotiation,

- Much of what has been said during the initial meeting applies to subsequent meetings therefore the Contractor must have an agenda and a game plan. He should designate a team leader. Preparation is very important.
- At the meeting, a spokesman for either side may run through what was agreed on at prior meetings. This gives the participants a chance to start out on an amicable basis, agreeing on something. Yet still, in some cases there may be a different interpretation of what happened previously.
- Minutes should be kept of everything that is agreed on at these meetings. Thus, in addition to that verbal run-through, there is a document to which the parties have agreed or which they may amend. All parties present at the meeting should read and sign off on those minutes, particularly if agreement was reached on any sub items.

If final agreement is not reached at the meeting, the time, date, and site should be set for the next meeting. Time and timing are very important. While holding frequent meetings does not guarantee that the dispute will be settled quickly, if they are not held at regular intervals, the dispute is bound to last longer. Obviously, however, a definite period of time is required between meetings in order for parties to mull things over and to prepare factual analyses in response to points made at the previous meeting [12].

Contractors are often working with borrowed money and have cash flow problems so the quicker the amicable settlement takes place, the better it will be for the Contractor to get rid of financial problems.

- Negotiating strategy is a personal matter. There are more or less standard approaches, and these may work for one individual and not for another. One member of the group may be tough and firm, while another member of the team talks about compromise and argues the other side's case.

If the Contractor wants repeat business with any Employer, he should avoid the stance of the tough, unyielding claims negotiator. Nor should he ever leave the impression that he is excessively claims-conscious.

To sum up, negotiating can be something of an art. The stakes are important, but so are the players. It's relatively easy to make a mistake about the personality or temperament of the adversaries. In any case, thorough preparation and documentation are the best tools to begin with.

- Visual aids are most effective and persuasive. Scale models of a dam, a cross-section of a tunnel, CPMs, schedules, graphs, blown-up photographs anything that depicts the claim situation will be convincing. These can get the point across more effectively than pages of text, no matter how well expressed.
- Outside parties may be brought into action during the negotiation phase. These persons must be chosen with care. A person may be an expert on technical terms but may be a poor speaker in a field; he may wander off the point or open doors one would not wish to open. The persons used as expert witnesses should be reliable and available when they are needed. Such witnesses should be prepared; they should know how the case is being argued, what the strategy is, and what points are being made that relate to him.

Unless after these negotiations amicable settlement can be achieved, the claim becomes a dispute to be resolved in the courtroom Through the dispute resolution process,

if the Contractor proves his case and wins, he will be paid by an award of the court, similarly if the Employer is right, the Contractor will not be paid and will incur legal costs as well as other losses [5].

## 6. CONCLUSION

Problems inevitably develop during a project's construction as a consequence of conflicting priorities between the Employer and the Contractor and changes introduced either knowingly or otherwise into the work. This study concludes that in today's competitive, risky, low profit margined construction market the Contractors have no other option but focus on the contractual terms of the projects to preserve their rights under the contract and be compensated accordingly. The only possible way of achieving this is the good understanding of project claims management strategies and its applications through out the projects.

The basis for good claims management starts with a solid understanding of a contractor's contractual rights and his obligations for performance under the written agreement. At this stage, in addition to targeting the project completion within the specified time and budget, special attention should be given to quality and environmental management issues, which are lately gaining more importance in the construction sector. Further it is essential to develop a solid and professional relationship with the Employer and his Engineer that is supported by the Contractor's performance and underwritten with good will. In adopting this strategy a contractor can establish an open line of communication that will allow the changes and the consequential problems to be discussed freely and openly between the parties.

Most clauses that generate entitlement under a contract, if clearly understood and well communicated to the Engineer in a timely manner, allow the Employer to either make changes that will mitigate the effects of the change or to accept the change and bear the time and cost implications.

In the case where untimely notice occurs or is poorly communicated by a contractor, which results in the Employer being unable to mitigate the effects of the change, the Employer may take exception and become adversarial. In this case the Contractor and the Employer's relations will fail and escalation is all but assured. Under these conditions,

high transaction costs will result to both parties and will ultimately lead to third party resolution through either litigation or arbitration.

In the event of a claim arising, early notice and good contemporaneous record keeping is of the highest importance in successful claims management. A contractor that is focused on these essential provisions will maintain control of the project and his Employer's perception of his performance and credibility.

Good client relations, early and clear notice and accurate contemporaneous documentation can mean the difference between an amicable and successful claim and an adversarial failure.

In the case of Turkish Contractors who have become more interested in foreign financed projects and pursuing business abroad in recent years, the concept of project claims management is gaining more importance. However, business in Turkey does not include these skills and knowledge yet and an understanding of claims management for many companies is still evolving.

Finally, items of further interest to this study that could be investigated include the contracts applicable law and the legal doctrines that support the clauses that generate entitlement. Of further interest would also be the mechanisms for resolving disputes under clause 67, ie, alternate dispute resolution processes [amicable settlement] and the process's of formal arbitration practiced in countries outside of Turkey.

## APPENDIX

The Appendix through A1 to A10 includes the exact clauses of FIDIC's 4<sup>th</sup> Edition referenced in Chapter 3.

### APPENDIX A1: CLAUSE 44 EXTENSION OF TIME FOR COMPLETION

#### 44.1 Extension of Time for Completion

*“In the event of*

- (a) the amount or nature of extra or additional work, or*
- (b) any cause of delay referred to in these Conditions, or*
- (c) exceptionally adverse climatic conditions, or*
- (d) any delay, impediment or prevention by the Employer, or*
- (e) other special circumstances which may occur, other than through a default of or breach of contract by the Contractor or for which he is responsible,*

*being such as fairly to entitle the Contractor to an extension of the Time for Completion of the Works, or any Section or part thereof, the Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of such extension and shall notify the Contractor accordingly, with a copy to the Employer.”*

#### 44.2 Contractor to Provide Notification and Detailed Particulars

*“Provided that the Engineer is not bound to make any determination unless the Contractor has*

- (a) within 28 days after such event has first arisen notified the Engineer with the Employer, and*
- (b) within 28 days, or such other reasonable time as may be agreed by the Engineer, after such notification submitted to the Engineer detailed particulars of any extension of time to which he may consider himself entitled in order that such submission may be investigated at the time.”*

### **44.3 Interim Determination of Extension**

*“Provided also that where an event has a continuing effect such that it is not practicable for the Contractor to submit detailed particulars within the period of 28 days referred to in Sub-Clause 44.2(b), he shall nevertheless be entitled to an extension of time provided that he has submitted to the Engineer interim particulars at intervals of not more than 28 days and final particulars within 28 days of the end of the effects resulting from the event. On receipt of such interim particulars, the Engineer shall, without undue delay, make an interim determination of extension of time and, on receipt of the final particulars, the Engineer shall review all the circumstances and shall determine an overall extension of time in regard to the event. In both such cases the Engineer shall notify the Contractor accordingly, with a copy to the Employer. No final review shall result in a decrease of any extension of time already determined by the Engineer.”*

## **APPENDIX A2: CLAUSE 40 SUSPENSION**

### **40.1 Suspension of Work**

*“The Contractor shall, on the instructions of the Engineer, suspend the progress of the Works or any part thereof for such time and in such manner as the Engineer may consider necessary and shall, during such suspension, properly protect and secure the Works or such part thereof so far as is necessary in the opinion of the Engineer. Unless such suspension is*

- (a) otherwise provided for in the Contract, or*
- (b) necessary by reason of some default of or breach of contract by the Contractor or for which he is responsible, or*
- (c) necessary by reason of climatic conditions on the Site, or*
- (d) necessary for the proper execution of the Works or for the safety of the Works or any part thereof (save to the extent that such necessity arises from any act or default by the Engineer or the Employer or from any of the risks defined in Sub-Clause 20.4),*

*Sub-Clause 40.2 shall apply.”*

### **40.2 Engineer's Determination following Suspension**

*“Where, pursuant to Sub-Clause 40.1, this Sub-Clause applies the Engineer shall, after due consultation with the Employer and the Contractor, determine:*

- (a) any extension of time to which the Contractor is entitled under Clause 44, and*
- (b) the amount, which shall be added to the Contract Price, in respect of the cost incurred by the Contractor by reason of such suspension, and shall notify the Contractor accordingly, with a copy to the Employer.”*

### **40.3 Suspension lasting more than 84 Days**

*“If the progress of the Works or any part thereof is suspended on the instructions of the Engineer and if permission to resume work is not given by the Engineer within a period of 84 days from the date of suspension then, unless such suspension is within paragraph (a), (b), (c) or (d) of Sub-Clause 40.1, the Contractor may give notice to the Engineer requiring permission, within 28 days from the receipt thereof, to proceed with the Works or that part thereof in regard to which progress is suspended. If, within the said time, such permission is not granted, the Contractor may, but is not bound to, elect to treat the suspension, where it affects part only of the Works, as an omission of such part under Clause 51 by giving a further notice to the Engineer to that effect, or, where it affects the whole of the Works, treat the suspension as an event of default by the Employer terminate his employment under the Contract in accordance with the provisions of Sub-Clause 69.1, whereupon the provisions of Sub-Clauses 69.2 and 69.3 shall apply.”*

**APPENDIX A3: CLAUSE 42 POSSESSION OF SITE AND ACCESS  
THERE TO**

**42.1 Possession of Site and Access Thereto**

*“Save insofar as the Contract may prescribe:*

- (a) the extent of portions of the Site of which the Contractor is to be given possession from time to time, and*
- (b) the order in which such portions shall be made available to the Contractor and subject to any requirement in the Contract as to the order in which the Works shall be executed, the Employer will, with the Engineer's notice to commence the Works, give to the Contractor possession of*
- (c) so much of the Site, and*
- (d) such access as, in accordance with the Contract, is to be provided by the Employer as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the programme referred to in Clause 14, if any, and otherwise in accordance with such reasonable proposals as the Contractor shall, by notice to the Engineer with a copy to the Employer, make. The Employer will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works with due dispatch in accordance with such programme or proposals, as the case may be.”*

**42.2 Failure to Give Possession**

*“If the Contractor suffers delay and/or incurs costs from failure on the part of the Employer to give possession in accordance with the terms of Sub-Clause 42.1, the Engineer shall, after due consultation with the Employer 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 Employer.”*

#### **42.3 Rights of Way and Facilities**

*“The Contractor shall bear all costs and charges for special or temporary rights of way required by him in connection with access to the Site. The Contractor shall also provide at his own cost any additional facilities outside the Site required by him for the purposes of the Works.”*

**APPENDIX A4: CLAUSE 17 SETTING OUT**

*“The Contractor shall be responsible for:*

*(a) the accurate setting-out of the Works in relation to original points, lines and levels of reference given by the Engineer in writing,*

*(b) the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of the Works, and*

*(c) the provision of all necessary instruments, appliances and labour in connection with the foregoing responsibilities.*

*If, at any time during the execution of the Works, any error appears in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required so to do by the Engineer, shall, at his own cost, rectify such error to the satisfaction of the Engineer, unless such error is based on incorrect data supplied in writing by the Engineer, in which case the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer.*

*The checking of any setting-out or of any line or level by the Engineer shall not in any way relieve the Contractor of his responsibility for the accuracy thereof and the Contractor shall carefully protect and preserve all bench-marks, sight-rails, pegs and other things used in setting-out the Works.”*

## **APPENDIX A5: CLAUSE 6 CUSTODY AND SUPPLY OF DRAWINGS AND DOCUMENTS**

### **6.1 Custody and Supply of Drawings and Documents**

*“The Drawings shall remain in the sole custody of the Engineer, but two copies thereof shall be provided to the Contractor free of charge. The Contractor shall make at his own cost any further copies required by him. Unless it is strictly necessary for the purposes of the Contract, the Drawings, Specification and other documents provided by the Employer or the Engineer shall not, without the consent of the Engineer, be used or communicated to a third party by the Contractor. Upon issue of the Defects Liability Certificate, the Contractor shall return to the Engineer all Drawings, Specification and other documents provided under the Contract.*”

*The Contractor shall supply to the Engineer four copies of all Drawings, Specification and other documents submitted by the Contractor and approved by the Engineer in accordance with Clause 7, together with a reproducible copy of any material which cannot be reproduced to an equal standard by photocopying. In addition the Contractor shall supply such further copies of such Drawings, Specification and other documents as the Engineer may request in writing for the use of the Employer, who shall pay the cost thereof.”*

### **6.2 One Copy of Drawings to be Kept on Site**

*“One copy of the Drawings, provided to or supplied by the Contractor as aforesaid, shall be kept by the Contractor on the Site and the same shall at all reasonable times be available for inspection and use by the Engineer and by any other person authorised by the Engineer in writing.”*

### **6.3 Disruption of Progress**

*“The Contractor shall give notice to the Engineer, with a copy to the Employer, whenever planning or execution of the Works is likely to be delayed, or disrupted unless*

*any further drawing or instruction is issued by the Engineer within a reasonable time. The notice shall include details of the drawing or instruction required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.”*

#### **6.4 Delays and Cost of Delay of Drawings**

*“If, by reason of any failure or inability of the Engineer to issue, within a time reasonable in all the circumstances, any drawing or instruction for which notice has been given by the Contractor in accordance with Sub-Clause 6.3, the Contractor suffers delay and/or incurs costs then the Engineer shall, after due consultation with the Employer 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 Employer.”*

#### **6.5 Failure by Contractor to Submit Drawings**

*“If the failure or inability of the Engineer to issue any drawings or instructions is caused in whole or in part by the failure of the Contractor to submit Drawings, Specification or other documents which he is required to submit under the Contract, the Engineer shall take such failure by the Contractor into account when making his determination pursuant to Sub-Clause 6.4”*

## **APPENDIX A6: CLAUSE 51 AND 52 VARIATIONS & VALUATION OF VARIATIONS**

*For providing the correct interpretation and understanding, Clause 51 Variations and Clause 52 Valuation of Variations are concerned together.*

### **51.1 Variations**

*“The Engineer shall make any variation of the form, quality or quantity of the Works or any part thereof that may, in his opinion, be necessary and for that purpose, or if for any other reason it shall, in his opinion, be appropriate, he shall have the authority to instruct the Contractor to do and the Contractor shall do any of the following:*

- (a) increase or decrease the quantity of any work included in the Contract,*
- (b) omit any such work (but not if the omitted work is to be carried out by the Employer or by another contractor),*
- (c) change the character or quality or kind of any such work,*
- (d) change the levels, lines, position and dimensions of any part of the Works,*
- (e) execute additional work of any kind necessary for the completion of the Works,*
- (f) change any specified sequence or timing of construction of any part of the Works.*

*No such variation shall in any way vitiate or invalidate the Contract, but the effect, if any, of all such variations shall be valued in accordance with Clause 52. Provided that where the issue of an instruction to vary the Works is necessitated by some default of or breach of contract by the Contractor or for which he is responsible, any additional cost attributable to such default shall be borne by the Contractor.”*

### **51.2 Instructions for Variations**

*“The Contractor shall not make any such variation without an instruction of the Engineer. Provided that no instruction shall be required for increase or decrease in the quantity of any work where such increase or decrease is not the result of an instruction*

*given under this Clause, but is the result of the quantities exceeding or being less than those stated in the Bill of Quantities.”*

### **52.1 Valuation of Variations**

*“All variations referred to in Clause 51 and any additions to the Contract Price which are required to be determined in accordance with Clause 52 (for the purposes of this Clause referred to as "varied work"), shall be valued at the rates and prices set out in the Contract if, in the opinion of the Engineer, the same shall be applicable. If the Contract does not contain any rates or prices applicable to the varied work, the rates and prices in the Contract shall be used as the basis for valuation so far as may be reasonable, failing which, after due consultation by the Engineer with the Employer and the Contractor, suitable rates or prices shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the Engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with Clause 60.”*

### **52.2 Power of Engineer to Fix Rates**

*“Provided that if the nature or amount of any varied work relative to the nature or amount of the whole of the Works or to any part thereof, is such that, in the opinion of the Engineer, the rate or price contained in the Contract for any item of the Works is, by reason of such varied work, rendered inappropriate or inapplicable, then, after due consultation by the Engineer with the Employer and the Contractor, a suitable rate or price shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the Engineer shall fix such other rate or price as is, in his opinion, appropriate and shall notify the Contractor accordingly, with a copy to the Employer. Until such time as rates or prices are agreed or fixed, the Engineer shall determine provisional rates or prices to enable on-account payments to be included in certificates issued in accordance with Clause 60.*

*Provided also that no varied work instructed to be done by the Engineer pursuant to Clause 51 shall be valued under Sub-Clause 52.1 or under this Sub-Clause unless, within 14 days of the date of such instruction and, other than in the case of omitted work, before the commencement of the varied work, notice shall have been given either:*

- (a) by the Contractor to the Engineer of his intention to claim extra payment or a varied rate or price, or*
- (b) by the Engineer to the Contractor of his intention to vary a rate or price.”*

### **52.3 Variations Exceeding 15 percent**

*“If, on the issue of the Taking-Over Certificate for the whole of the Works, it is found that as a result of:*

- (a) all varied work valued under Sub Clauses 52.1 and 52.2, and*
- (b) all adjustments upon measurement of the estimated quantities set out in the Bill of Quantities, excluding Provisional Sums, dayworks and adjustments of price made under Clause 70,*

*but not from any other cause, there have been additions to or deductions from the Contract Price which taken together are in excess of 15 per cent of the "Effective Contract Price" (which for the purposes of this Sub-Clause shall mean the Contract Price, excluding Provisional Sums and allowance for dayworks, if any) then and in such event (subject to any action already taken under any other Sub-Clause of this Clause), after due consultation by the Engineer with the Employer and the Contractor, there shall be added to or deducted from the Contract Price such further sum as may be agreed between the Contractor and the Engineer or, failing agreement, determined by the Engineer having regard to the Contractor's Site and general overhead costs of the Contract. The Engineer shall notify the Contractor of any determination made under this Sub-Clause, with a copy to the Employer. Such sum shall be based only on the amount by which such additions or deductions shall be in excess of 15 per cent of the Effective Contract Price.”*

## **52.4 Daywork**

*“The Engineer may, if in his opinion it is necessary or desirable, issue an instruction that any varied work shall be executed on a daywork basis. The Contractor shall then be paid for such varied work under the terms set out in the daywork schedule included in the Contract and at the rates and prices affixed thereto by him in the Tender.*

*The Contractor shall furnish to the Engineer such receipts or other vouchers as may be necessary to prove the amounts paid and, before ordering materials, shall submit to the Engineer quotations for the same for his approval.*

*In respect of such of the Works executed on a daywork basis, the Contractor shall, during the continuance of such work, deliver each day to the Engineer an exact list in duplicate of the names, occupation and time of all workmen employed on such work and a statement, also in duplicate, showing the description and quantity of all materials and Contractor's Equipment used thereon or therefor other than Contractor's Equipment which is included in the percentage addition in accordance with such daywork schedule. One copy of each list and statement will, if correct, or when agreed, be signed by the Engineer and returned to the Contractor.*

*At the end of each month the Contractor shall deliver to the Engineer a priced statement of the labour, materials and Contractor's Equipment, except as aforesaid, used and the Contractor shall not be entitled to any payment unless such lists and statements have been fully and punctually rendered. Provided always that if the Engineer considers that for any reason the sending of such lists or statements by the Contractor, in accordance with the foregoing provision, was impracticable he shall nevertheless be entitled to authorise payment for such work, either as daywork, on being satisfied as to the time employed and the labour, materials and Contractor's Equipment used on such work, or at such value therefor as shall, in his opinion, be fair and reasonable.”*

**APPENDIX A7: CLAUSE 12 NOT FORESEEABLE PHYSICAL  
OBSTRUCTIONS OF CONDITIONS**

**Clause 12.1 Sufficiency of Tender**

*“The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices stated in the Bill of Quantities, all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract (including those in respect of the supply of goods, materials, Plant or services or of contingencies for which there is a Provisional Sum) and all matters and things necessary for the proper execution and completion of the Works and the remedying of any defects therein.”*

**Clause 12.2 Not Foreseeable Obstructions or Conditions**

*“If, however, during the execution of the Works the Contractor encounters physical obstructions or physical conditions, other than climatic conditions on the Site, which obstructions or conditions were, in his opinion, not foreseeable by an experienced contractor, the Contractor shall forthwith give notice thereof to the Engineer, with a copy to the Employer. On receipt of such notice, the Engineer shall, if in his opinion such obstructions or conditions could not have been reasonably foreseen by an experienced contractor, after due consultation with the Employer and the Contractor, determine:*

- (a) any extension of time to which the Contractor is entitled under Clause 44, and*
- (b) the amount of any costs which may have been incurred by the Contractor by reason of such obstructions or conditions having been encountered, which shall be added to the Contract Price,*

*and shall notify the Contractor accordingly, with a copy to the Employer. Such determination shall take account of any instruction which the Engineer may issue to the Contractor in connection therewith, and any proper and reasonable measures acceptable to the Engineer which the Contractor may take in the absence of specific instructions from the Engineers.*

## **APPENDIX A8: CLAUSE 65 SPECIAL RISKS**

*For providing the correct interpretation and understanding Clause 65 Special Risks is evaluated in conjunction with Clause 20.4 Employer's Risks.*

### **65.1 No Liability for Special Risks**

*"The Contractor shall be under no liability whatsoever in consequence of any of the special risks referred to in Sub-Clause 65.2, whether by way of indemnity or otherwise, for or in respect of:*

- (a) destruction of or damage to the Works, save to work condemned under the provisions of Clause 39 prior to the occurrence of any of the said special risks, or*
- (b) destruction of or damage to property, whether of the Employer or third parties, or*
- (c) injury or loss of life."*

### **65.2 Special Risks**

*The special risks are:*

- (a) the risks defined under paragraphs (a), (c), (d) and (e) of Sub-Clause 20.4, and*
- (b) the risks defined under paragraph (b) of Sub-Clause 20.4 insofar as these relate to the country in which the Works are to be executed*

### **65.3 Damage to Works by Special Risks**

*If the Works or any materials or Plant on or near or in transit to the Site, or any of the Contractor's Equipment, sustain destruction or damage by reason of the said special risks, the Contractor shall be entitled to payment in accordance with the Contract for any Permanent Works duly executed and for any materials or Plant so destroyed or damaged and, so far as may be required by the Engineer or as may be necessary for the completion of the Works, to payment for:*

- (a) rectifying any such destruction or damage to the Works, and*
- (b) replacing or rectifying such materials or Contractor's Equipment*

*and the Engineer shall determine an addition to the Contract Price in accordance with Clause 52 (which shall in the case of the cost of replacement of Contractor's Equipment include the fair market value thereof as determined by the Engineer) and shall notify the Contractor accordingly, with a copy to the Employer.*

#### **65.4 Projectile, Missile**

*Destruction, damage, injury or loss of life caused by the explosion or impact, whenever and wherever occurring, of any mine, bomb, shell, grenade, or other projectile, missile, munition, or explosive of war, shall be deemed be a consequence of the said special risks.*

#### **65.5 Increased Costs arising from Special Risks**

*Save to the extent that the Contractor is entitled to payment under any other provision of the Contract, the Employer shall repay to the Contractor any costs of the execution of the Works (other than such as may be attributable to the cost of reconstructing work condemned under the provisions of Clause 39 prior to the occurrence of any special risk) which are howsoever attributable to or consequent on or the result of or in any way whatsoever connected with the said special risks, subject however to the provisions in this Clause hereinafter contained in regard to outbreak of war, but the Contractor shall, as soon as any such cost comes to his knowledge, forthwith notify the Engineer thereof. The Engineer shall, after due consultation with the Employer and the Contractor, determine the amount of the Contractor's costs in respect thereof which shall be added to the Contract Price and shall notify the Contractor accordingly, with a copy to the Employer.*

### **65.6 Outbreak of War**

*If, during the currency of the Contract, there is an outbreak of war, whether war is declared or not, in any part of the world which, whether financially or otherwise, materially affects the execution of the Works, the Contractor shall, unless and until the Contract is terminated under the provisions of this Clause, continue to use his best endeavours to complete the execution of the Works. Provided that the Employer shall be entitled, at any time after such outbreak of war, to terminate the Contract by giving notice to the Contractor and, upon such notice being given, the Contract shall, except as to the rights of the parties under this Clause and Clause 67, terminate, but without prejudice to the rights of either party in respect of any antecedent breach thereof.*

### **65.7 Removal of Contractor's Equipment on Termination**

*If the Contract is terminated under the provisions of Sub-Clause 65.6, the Contractor shall, with all reasonable dispatch, remove from the Site all Contractor's Equipment and shall give similar facilities to his Subcontractors to do so.*

### **65.8 Payment if Contract Terminated**

*If the Contract is terminated as aforesaid, the Contractor shall be paid by the Employer, insofar as such amounts or items have not already been covered by payments on account made to the Contractor, for all work executed prior to the date of termination at the rates and prices provided in the Contract and in addition:*

- (a) The amounts payable in respect of any preliminary items referred to in the Bill of Quantities, so far as the work or service comprised therein has been carried out or performed, and a proper proportion of any such items which have been partially carried out or performed.*
- (b) The cost of materials, Plant or goods reasonably ordered for the Works which have been delivered to the Contractor or of which the Contractor is legally liable to accept delivery, such materials, Plant or goods becoming the property of the Employer upon such payments being made by him.*

*(c) A sum being the amount of any expenditure reasonably incurred by the Contractor in the expectation of completing the whole of the Works insofar as such expenditure has not been covered by any other payments referred to in this Sub-Clause.*

*(d) Any additional sum payable under the provisions of Sub-Clauses 65.3 and 65.5.*

*(e) Such proportion of the cost as may be reasonable, taking into account payments made or to be made for work executed, of removal of Contractor's Equipment under Sub-Clause 65.7 and, if required by the Contractor, return thereof to the Contractor's main plant yard in his country of registration or to other destination, at no greater cost.*

*(f) The reasonable cost of repatriation of all the Contractor's staff and workmen employed on or in connection with the Works at the time of such termination.*

*Provided that against any payment due from the Employer under this Sub-Clause, the Employer shall be entitled to be credited with any outstanding balances due from the Contractor for advances in respect of Contractor's Equipment, materials and Plant and any other sums which, at the date of termination, were recoverable by the Employer from the Contractor under the terms of the Contract. Any sums payable under this Sub Clause shall, after due consultation with the Employer and the Contractor, be determined by the Engineer who shall notify the Contractor accordingly, with a copy to the Employer.*

## **APPENDIX A9: CLAUSE 69 DEFAULT OF EMPLOYER**

### **69.1 Default of Employer**

*“In the event of the Employer:*

*(a) failing to pay to the Contractor the amount due under any certificate of the Engineer within 28 days after the expiry of the time stated in Sub-Clause 60.10 within which payment is to be made, subject to any deduction that the Employer is entitled to make under the Contract, or*

*(b) interfering with or obstructing or refusing any required approval to the issue of any such certificate, or*

*(c) becoming bankrupt or, being a company, going into liquidation, other than for the purpose of a scheme of reconstruction or amalgamation, or*

*(d) giving notice to the Contractor that for unforeseen economic reasons it is impossible for him to continue to meet his contractual obligations,*

*the Contractor shall be entitled to terminate his employment under the Contract by giving notice to the Employer, with a copy to the Engineer. Such termination shall take effect 14 days after the giving of the notice.”*

### **69.2 Removal of Contractor's Equipment**

*“Upon the expiry of the 14 days' notice referred to in Sub-Clause 69.1, the Contractor shall, notwithstanding the provisions of Sub-Clause 54.1, with all reasonable dispatch, remove from the Site all Contractor's Equipment brought by him thereon.”*

### **69.3 Payment on Termination**

*“In the event of such termination the Employer shall be under the same obligations to the Contractor in regard to payment as if the Contract had been terminated under the provisions of Clause 65, but, in addition to the payments specified in Sub-Clause 65.8, the*

*Employer shall pay to the Contractor the amount of any loss or damage to the Contractor arising out of or in connection with or by consequence of such termination.”*

#### **69.4 Contractor's Entitlement to Suspend Work**

*“Without prejudice to the Contractor's entitlement to interest under Sub-Clause 60.10 and to terminate under Sub-Clause 69.1, the Contractor may, if the Employer fails to pay the Contractor the amount due under any certificate of the Engineer within 28 days after the expiry of the time stated in Sub-Clause 60.10 within which payment is to be made, subject to any deduction that the Employer is entitled to make under the Contract, after giving 28 days' prior notice to the Employer, with a copy to the Engineer, suspend work or reduce the rate of work.*

*If the Contractor suspends work or reduces the rate of work in accordance with the provisions of this Sub-Clause and thereby suffers delay or incurs cost the Engineer shall, after due consultation with the Employer 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 Employer.*

#### **69.5 Resumption of Work**

*“Where the Contractor suspends work or reduces the rate of work, having given notice in accordance with Sub-Clause 69.4, and the Employer subsequently pays the amount due, including interest pursuant to Sub-Clause 60.10, the Contractor's entitlement under Sub-Clause 69.1 shall, if notice of termination has not been given, lapse and the Contractor shall resume normal working as soon as is reasonably possible.”*

## **APPENDIX A10: CLAUSE 70 CHANGES IN COST AND LEGISLATION**

### **Clause 70.1 Increase or Decrease of Cost**

*“There shall be added to or deducted from the Contract Price such sums in respect of rise or fall in the cost of labour and/or materials or any other matters affecting the cost of the execution of the works as may be determined in accordance with Part II of these Conditions.”*

### **Clause 70.2 Subsequent Legislation**

*“If, after the date 28 days prior to the latest date for submission of tenders for the Contract there occur in the country in which the Works are being or are to be executed changes to any National or State Statute, Ordinance, Decree or other Law or any regulation or bye-law of any local or other duly constituted authority, or the introduction of any such State Statute, Ordinance, Decree, Law, regulation or bye-law which causes additional or reduced cost to the Contractor, other than under Sub-Clause 70.1, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be added to or deducted from the Contract Price and the Engineer shall notify the Contractor accordingly, with a copy to the Employer.”*

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