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## CONTENTS

### Editorial

Dispute Resolution Mechanisms Available in the United Arab Emirates and Other Middle Eastern Countries  
Anura Jagodage, MRICS, AAIQS, ACI Arb, MIIE(SL), CCE  

Application of Delay Damages and Penalties from the Legal Point of View  
Palitha Premasiri Gamage FRICS, ACI Arb  

The Potential of the Method of Measurements used by Engineers and Contractors in Tendering and Subsequent Contract Administration  
Kelum Mallawarachchi, BSc(QS), MRICS, ACI Arb, MAACEI  

Contractor’s entitlement to extension of time and prolongation costs under fidic 4th edition  
Uthpala A.K. Hewage BSc(QS), ACI Arb  

Dubai Metro  
Lakshman Gunatilake MInstCES, ACI Arb, PMP, MACostE, MIIE(SL), IEng  

Managing Value than Managing Cost.  
Prasanna Pushpajith DipSurv., MRICS, ACI Arb  

Determination By The Engineer Under The ICTAD/SBD/02 Form of Contract  
D G Jayaratna NDT-Civil Eng., FIQS(SL), FRICS  

Are Design and Build Contracts successful in the United Arab Emirates (UAE) construction industry?  
Chaminda Janak BSc(Hons)  

Business Management and Strategies  
Pubudu Manoj Wickremasinghe MSc, MRICS  

Guaranities And Warranties A Qs's Nightmare Or Their Dilemma  
Dr. M. Haris Z Deen PhD, MBA, BSc, FRICS, ACI Arb (retd), MAACE  

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dispute Resolution Mechanisms Available in the United Arab Emirates and Other Middle Eastern Countries</td>
<td>5</td>
</tr>
<tr>
<td>Application of Delay Damages and Penalties from the Legal Point of View</td>
<td>12</td>
</tr>
<tr>
<td>The Potential of the Method of Measurements used by Engineers and Contractors in Tendering and Subsequent Contract Administration</td>
<td>15</td>
</tr>
<tr>
<td>Contractor’s entitlement to extension of time and prolongation costs under fidic 4th edition</td>
<td>21</td>
</tr>
<tr>
<td>Dubai Metro</td>
<td>23</td>
</tr>
<tr>
<td>Managing Value than Managing Cost.</td>
<td>28</td>
</tr>
<tr>
<td>Determination By The Engineer Under The ICTAD/SBD/02 Form of Contract</td>
<td>34</td>
</tr>
<tr>
<td>Are Design and Build Contracts successful in the United Arab Emirates (UAE) construction industry?</td>
<td>43</td>
</tr>
<tr>
<td>Business Management and Strategies</td>
<td>49</td>
</tr>
<tr>
<td>Guaranties And Warranties A Qs's Nightmare Or Their Dilemma</td>
<td>55</td>
</tr>
</tbody>
</table>
Editorial

Dear Sri Lankan Quantity Surveyors

In light of the recent decline in member participation in Continuing Professional Development programmes, it is a relief to have received the response to this edition of SLQS Journal that we did. At this stage, as we are faced with a lull in the usually accelerated construction industry of Dubai, we have a duty, as learned members of society, to use this time wisely, to ready ourselves for the storm of activity that usually follows on the heels of economic recession. The best mode of doing so would be to aggressively better ourselves and our fellows in the construction industry, through participating in the above-mentioned programmes as well as through contributing our academic insight to such forums as this journal.

In this issue, we are pleased to note a pair of eminently practical and useful contributions from Kalum Mallawarachchi and Dr. Haris Deen, which state matters that are simple at first glance, yet are often overlooked in application, with Dr. Haris Deen’s concise approach bearing the elegant hallmarks of maturity. Also, of particular interest as a detailed observation of a single scenario is Lakshman Gunathilaka’s case study on the Dubai Metro system.

For those worried that the journal may be concentrated on the construction issues of one particular region, fear not – we are pleased to note that our relatively young journal enjoys a selection of authors from countries in the Middle East, Asia and Europe, with the tacit knowledge that the information they impart is globally relevant. Among these individuals, we are very pleased to note, given the growth of Sri Lanka’s economy and construction industry, is D.G. Jayarathna writing from Sri Lanka on the contemporary implementation of the ICTAD Conditions of Contract, which is sure to provide a handy reference to quantity surveyors moving back to Sri Lanka, allowing them to gain an idea of the current state of affairs in the industry.

On a closing note, we ask all of our readers to recall that this journal is your property. As such, the rightful growth of the journal is very much your concern and all feedback and articles are not only appreciated, but an active part of being a member of the SLQS and the construction community. And, Editorial Board extends their gratitude and thanking to Miss Vishwa Gamage for her contribution for proofreading.

We anticipate your academic pleasure and hope that you assist us in ensuring it for future readers as well, by providing high-quality articles of your own in the near future.

On behalf of the editorial committee,
Dhammika T. Gamage
Dispute Resolution Mechanisms Available in the United Arab Emirates and Other Middle Eastern Countries

Anura Jagodage MRICS, AAIQS, ACIArb, MIIE(SL), CCE
A Senior Quantity Surveyor with 23 years experience in all aspects of pre & post contract quantity surveying by handling a varied range of projects in Middle East and Sri Lanka in public and private sectors. Currently working with AECOM Middle East on secondment to Contracts & Purchasing Department of Roads & Transport Authority (RTA), Dubai.

Abstract
The occurrence of disputes in Middle Eastern countries have risen to unprecedented levels due to rapid growth in international business in relation to the oil sector, construction industry, trades etc. Therefore, it is important to look into the methods available for resolving disputes through adopting alternative dispute resolution techniques, arbitration and litigation.

The objective of this paper is to identify the dispute resolution techniques used in the Middle Eastern countries (Arabian Gulf countries), including the United Arab Emirates (UAE), to resolve disputes within the framework of the respective legislative systems in place.

This paper provides an overview of the advantages and disadvantages of each dispute resolution technique available and the techniques yet to be implemented in the Arabian Gulf countries. In order to facilitate the choosing of an appropriate technique to resolve a particular dispute, the Alternative Dispute Resolution (ADR) process, together with commonly used resolution methods such as arbitration and litigation, is disclosed herein.

The potential benefits and risks of the ADR process are discussed in this paper, as well as the validity of agreement of disputes in line with the UAE legislative system. Moreover, this paper highlights the process of enforcing an award given to parties who belong to different countries, the availability of awards and treaties for the enforcement of foreign judgments in line with the law of the country.

Introduction
Disputes and conflicts on contracts are common in the Middle Eastern countries. Dispute resolution mechanisms and facilities such as negotiation, mediation, conciliation, med-arb., dispute review boards, neutral evaluation, arbitration and litigation are available in order to resolve disputes in construction, commercial, and trade contracts. It is noteworthy that some of the above techniques are rarely practiced in the Gulf region.

An increasing number of construction projects underway throughout the Gulf region, together with issues relating to the payment delays, variations, delay in projects, ambiguities or discrepancies that appear in contract documents, changes of conditions, unexpected escalations in the cost of materials, all lead to conflicts and finally to disputes.

Before entering a contract parties must check the mechanisms included in the contract for the resolution of disputes. Parties must choose a mechanism for dealing with disputes which is cost effective, speedy and causes minimum disruption to each party.

In this paper, the dispute resolution mechanisms adopted, especially in relation to the construction contracts in the UAE and other Middle Eastern Countries, in line with their respective legal system are discussed.

Dispute Avoidance through Conflict Management
Most conflicts or disputes in construction contracts occur due to the unwarranted exigency created by developers in completing contracts within the shortest possible time, thereby not allowing sufficient time to develop designs and contract documents.

Notwithstanding the emphasis on the desire to avoid dispute, there may be occasions where the parties...
have legitimate disputes and the techniques of dispute resolution could be used to bring about a settlement.

**Legal Systems and Dispute Resolution Techniques used in the UAE and Other Middle Eastern Countries**

**Legal Systems**

All the Arabian Gulf countries such as Saudi Arabia, Qatar, Bahrain, Oman, Kuwait and the UAE are based on a Civil Law System that relies heavily on codified laws. Many states in the region have Conciliation and Arbitration Centers for the settlement of Commercial disputes.

Within the UAE Legal system, the sources of law are drawn from:

1) The Constitution;
2) Federal laws;
3) Local Emirates laws and regulations;
4) The Islamic Shariáh
5) Custom and practice

The hierarchy of the UAE law places the Shari’ah at the peak of the pyramid, followed by the federal and local laws (laws promulgated by individual Emirates).

In most of the Arabian Gulf states, the Civil Courts deal with all civil and commercial matters of any nature. However, in Saudi Arabia, the Sharia law and the Commercial law form one body of law, with Sharia rules prevailing over commercial rules, a situation which differs from the other Gulf Arabian states where Sharia law and commercial law co-exist as separate systems.

**Dispute Resolution Techniques**

The common forms of dispute resolution methods and facilities carried out are as follows:

- Negotiation
- Mediation
- Conciliation
- Med-Arb
- Dispute Review Boards
- Neutral Evaluation
- Arbitration
- Litigation

**Negotiation**

This is the most common form of dispute resolution used in the Middle East and the rest of the world. In negotiation, the parties themselves can attempt to resolve differences, make concessions and compromise, rather than sinking to coercion and confrontation.

They can settle their dispute at any time through negotiation, when other techniques are still being processed.

This technique is the best out of all those mentioned above in regard of the saving of time, cost and confidentiality.

Normally, under the Conditions of Contracts in Middle Eastern countries, there is a provision to settle a dispute amicably between the parties before going to arbitration. Accordingly, arbitration shall not be commenced unless an attempt has been made by the parties to settle such dispute amicably through negotiation.

**Mediation**

Essentially, mediation is a private and non-binding form of dispute resolution where an independent third party facilitates the disputed parties coming to an amicable settlement.

It is, on the whole, a successful idea, because even if settlement is not achieved at the mediation process, the parties, with the help of the mediator, finally agree upon a deal that allows them to get on with the project and avoid the process of arbitration. In order to achieve this, the parties and mediator have to work hard. The mediation is the process controlled by the parties themselves.

The most important aspect of mediation is the parties choose the mediator and its procedures, timetable, disclosures. The party will also appoint the mediator and control when and where and the way they proceed with the mediation.

It is not the mediator’s role to suggest terms, make recommendations or express any formal judgment on the case. The mediator can talk about the option but mediator cannot insist on a deal. If requested, they may advise each party. They are neutral message carriers.

Mediation is entirely without prejudice. Where mediation is successful, it is generally speedier and less costly than arbitration or litigation.
This process is very useful rather than going for the lengthy procedure of arbitration, as in most of the local Construction Contracts.

The mediation technique is rarely used in the UAE and it is high time that a system is established for resolving disagreements through mediation in the local construction industry.

**Conciliation**
Conciliation is another alternative dispute resolution process whereby the parties to a dispute (including future interest disputes) agree to utilize the services of a conciliator, who then meets with the parties separately in an attempt to resolve their differences. Conciliation differs from arbitration in that the conciliation process, in and of itself, has no legal standing, and the conciliator usually has no authority to seek evidence or call witnesses, usually writes no decision, and makes no award. Conciliation differs from mediation in that the main goal is to conciliate, most of the time by seeking concessions. In mediation, the mediator tries to guide the discussion in a way that optimizes each party's needs, takes feelings into account and reframes representations.

**Conciliation in the UAE**
There are two Commercial Conciliation and Arbitration centers in UAE. A party desiring conciliation can seek facilitators from the Dubai International Arbitration Center (DIAC) or the Abu Dhabi Commercial Conciliation and Arbitration Center (ADCCAC), in accordance with the rules and procedures of the centers.

It is noteworthy to state that while some believe conciliation is of little benefit because of its limitations, since most of the forms of Contract (modified versions of FIDIC) and the FIDIC 1999 Rainbow suite of contracts and the 1987 4th Edition Conditions of Contract for Works of Civil Engineering Construction being used in the UAE contain the provision for amicable settlement. Unless otherwise agreed by the parties, if amicable settlement not achieved, then the next process for dispute resolution is only through arbitration.

Conciliation remains one of several available forms of alternative dispute resolution. If the parties involved in a dispute consider this to be an effective way of resolving their issues, then it is a method that should be retained.

**Med-arb**
A combination of mediation and arbitration, where the parties agree to mediate but if that fails to achieve a settlement, the dispute is referred to an arbitrator. The same person may act as mediator and arbitrator in this type of arrangement.

This technique is rarely used in the UAE and other Middle Eastern countries.

**Dispute Adjudication Boards (DAB)**
This technique facilitates a process where an independent board evaluates disputes. Most of the Conditions of Contract used in UAE are based on the FIDIC Forms of Contract 1987 edition, modified to suit requirements. However, the Conditions of Contract used in the UAE are based on the FIDIC Forms of Contract 1987 edition, which does not provide for DAB; the latest trend in the UAE to adopt the FIDIC Forms of Contract 1999 has instigated the emergence of adjudication by establishing DAB.

The difficulty in the UAE with such dispute resolution mechanisms is their enforceability (or lack of it) under UAE law; it is by no means certain that the UAE courts would enforce/execute an award or decision made by an adjudicator appointed by the parties. The parties could, however, devise mechanisms for rapid dispute resolution which comply with UAE civil procedural law on arbitration, in which case the award/decision is likely to be enforceable; whether the UAE courts would give effect to the outcome of the procedure that is not compliant with the Civil Procedure Law is debatable.

This technique is the most recent development in the field of alternative dispute resolution in the international Construction field has been the widespread adaptation of dispute boards for large construction projects.

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2 Part 1 Introduction to Arbitration by Kay Linnell, FCIArb, FCA, MBA, MRIM, CFE, MEWI
3 Royal Institution of Chartered Surveyors, Dubai Sector, Seminar at API Tower, Dubai, UAE, 25 October, 2005, Getting Paid by Steven Hunt, Mason Galadari
In the last few years, dispute boards have become a regular feature outside of the USA, to which their origins can be traced some three decades back.

International institutes such as the FIDIC and the World Bank, both who make provision of their standard forms of Contract for the projects have now adopted this method.

A dispute board is a tribunal established under a contract to resolve disputes. DAB shall comprise either one or three qualified persons. If the DAB is to comprise three persons, each party shall nominate one member for the approval of the other party. The parties shall consult both these members and agree upon the third member, who acts as chairman of the board.

On small projects, a one person tribunal is appropriate. Usually, tribunal members are either Engineers or Lawyers. The dispute board receives and hears written and oral submissions from the parties and issue a determination.

The proceedings are short - 56 days under the World Bank and for the FIDIC, within 84 days after receiving such a reference or within such other period as may be proposed by the DAB and approved by both parties.

The dispute board procedure is not designed to impose final and binding determination on the parties.

If either party is dissatisfied with the DAB determination, then either party may give notice to the other party of its dissatisfaction within the time frame stipulated in the contract.

If neither party objects to the determination of DAB, its determination becomes final and binding and must be complied with. The hope is that both parties will accept the determination so that the dispute shall end.

This method is widely adopted in construction contracts around the world and the success rate is comparatively high. I hope this more flexible alternative to arbitration will be adopted in more forms of contract in the Middle East, including the UAE, in the near future.

Neutral Evaluation
Under this process, a neutral person (often legally qualified) gives an opinion after hearing each party’s case and gives a non-binding assessment of merits. This can be used as a basis for settlement discussion or further negotiation.

This process is rarely used in the UAE and other Middle Eastern countries.

Arbitration

What is arbitration?
Arbitration is a legally enforceable procedure to obtain fair resolution to a dispute by an impartial tribunal without unnecessary delay or expense. It is a private and confidential process between the parties and the arbitrator and the parties are free to agree upon how their disputes are resolved; the court should not intervene except to assist in administration of the process. The award of the arbitrator is enforceable, as with a court judgment.

Practice in the UAE

This is a common form of dispute resolution technique used in the UAE where other alternative dispute resolution techniques fail to achieve a settlement of a dispute.

Arbitration in the UAE is still developing, although the UAE has three arbitration centers in the emirates of Abu Dhabi and Dubai. The Abu Dhabi Chamber of Commerce has established an independent arbitration center called the Abu Dhabi Commercial Conciliation and Arbitration Center and has introduced procedural rules and a schedule of costs for conducting arbitration in Emirate of Abu Dhabi. These rules deal with local and international arbitration systems and a few arbitration cases have already been conducted under the said rules.

There are two prominent sets of rules of arbitration used in Dubai. They are as follows:
• Rules of Arbitration of the Dubai International Arbitration Centre (DIAC)
• Rules of Arbitration of the Dubai International Financial Centre (DIFC)
The Ruler of the Emirate of Dubai has recently enacted a new arbitration law for the Dubai International Financial Center (DIFC). Dubai enacted local emirates law have an arbitration law. The law will enable the recently established DIFC-LCIA (London Court of International Arbitration) to provide neutral, efficient and reliable dispute resolution to companies in free zones which have entities established under Financial Free Zone Law.

The UAE (except for the Emirate of Dubai), however, does not have an arbitration Act.

Arbitration is currently being conducted under UAE Civil Procedures Law, which governs litigation before the courts. Articles 203 to 216 of the Civil Procedures Law specially addresses arbitration, the validity of the arbitration and the appointment of arbitrators5.

Articles 235 to 246 of UAE Civil Procedures Law deal with the enforcement of foreign arbitration in the UAE6.

The UAE has joined the UN Convention for the recognition and enforcement of foreign arbitration awards in 2006.

The UAE Civil Procedure Code, Federal Law No (11) of 1992 chapter (iv) states the execution of Foreign Judgment under Article (235), (236), (239) and (238).

This gives UAE courts powers to enforce arbitration awards given in foreign countries.

The UAE companies doing business globally and foreign investors looking at opportunities in the country will benefit from the country becoming a signatory to the Convention on the recognition and enforcement of Foreign Arbitral Awards.

The process ensures a higher quality of decision-making and saves management and travel costs.

Enforcement of Foreign Arbitral Award in Middle East

As a further indication that arbitration has become widely accepted in the Middle East, all GCC states have acceded to the New York Convention. Lebanon, Oman, Iran, Qatar, and the UAE recently acceded in 1998, 1999, 2001, 2002, and 2006, respectively7.

There are virtually no treaties for the reciprocal enforcement of court judgments between Middle Eastern countries and Western nations, an enforcement treaty between France and the UAE being one of the few that exist. Accordingly, parties wishing to litigate in the courts of a Western country are likely to end up having a ‘paper tiger’ at the end of the process, if all assets are located in the Middle East. Arbitration in the UAE has gained momentum as a result of the UAE’s accession to the New York Convention, which has been in effect since 19 November, 2006. There has been no reported case as to enforcement in the UAE under the New York Convention.

It is hoped that UAE judges will recognize the importance of the international community and trade in relation to enforcement, especially in applying the public policy ground for refusal of enforcement contained in article V2(b) of the New York Convention. Saudi Arabia acceded to the New York Convention in 1994, but enforcement has proved problematic. A foreign award needs to be ratified by the Saudi Arabian Board of Grievances, which is the commercial court having jurisdiction to enforce foreign judgments and arbitral awards. In so doing, the Board of Grievances would likely consider the issues ab initio, thus adopting a merits review of the award. This has been a disincentive for arbitration practitioners to recommend arbitration in Saudi Arabia as it practically adds another layer to the dispute resolution process. The Board of Grievances has refused to enforce foreign awards on the ground of public policy if the awards do not comply with principles of Islamic or Shari’a law. As far as the authors are aware, no foreign arbitration award has ever been enforced in Saudi Arabia8.

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6 Refer No 5
7 Middle East Overview by Stephen Jagusch, James Kwan, Allen & Overy LLP
8 Middle East Overview by Stephen Jagusch, James Kwan, Allen & Overy LLP
Most forms of contract available in the UAE adopt the following clause:

‘All dispute arising from the interpretation, implementation or termination of agreement shall have initially settled via negotiation or conciliation in accordance with the provision of the Commercial Conciliation and Arbitration Center’s or Chambers of Commerce procedural rules in the respective emirate’

In UAE, an award made by arbitrator is enforceable. The unsuccessful party will perform the award in accordance with the terms of the agreement. In the event that the unsuccessful party fails to comply with the terms of the award, the successful party may start court proceedings...

Challenging the award
A party can challenge the award on the ground of substantive jurisdiction, serious irregularity, appeal on point of law etc.

Litigation
This is a formal lawsuit in a state or federal court pursuant to the terms of the contract and under the rules of the jurisdiction where the lawsuit is filed. Lawsuits are time consuming, lengthy and very expensive and the outcome may rest more on legal technicalities than on fact or circumstance. A party submitting a dispute to litigation retains no control over process or outcome.

The formal process whereby claims are taken through court and conducted in public. Judgments are binding on the parties, subject to rights of appeal.

Comparison of Dispute Resolution Techniques

<table>
<thead>
<tr>
<th>Technique</th>
<th>Statue</th>
<th>Frequency of use</th>
<th>Speed</th>
<th>Cost</th>
<th>Confidentiality</th>
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<th>Adversarial</th>
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<td>Very Common</td>
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<td>No</td>
<td>No</td>
<td>Can Continue throughout the dispute</td>
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<td>No</td>
<td>Infrequent</td>
<td>Fast</td>
<td>Low</td>
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<td>No</td>
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<tr>
<td>Conciliation</td>
<td>No</td>
<td>Rare</td>
<td>Fast</td>
<td>Low</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Neutral Evaluation</td>
<td>No</td>
<td>Infrequent</td>
<td>Fast</td>
<td>Low</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
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<tr>
<td>Arbitration</td>
<td>Yes</td>
<td>Common</td>
<td>Contingent</td>
<td>Contingent</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Litigation</td>
<td>Yes</td>
<td>Common</td>
<td>Slow</td>
<td>High</td>
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Comparison of litigation with Mediation/Conciliation and Arbitration

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<th>Area</th>
<th>Dispute Technique</th>
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<th>Arbitration</th>
<th>Litigation</th>
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<tr>
<td>Flexibility</td>
<td>Good</td>
<td>Contingent ON WHAT?</td>
<td>Poor</td>
<td></td>
</tr>
<tr>
<td>Party Control</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Party Choice</td>
<td>Yes</td>
<td>Contingent</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Creative Solutions</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Speed</td>
<td>Fast</td>
<td>Contingent</td>
<td>Slow</td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>Low</td>
<td>Contingent</td>
<td>Expensive</td>
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9 Skills & Knowledge of Cost Engineering 5th Edition Revised by AACE International, USA
Conclusion

The Middle East construction market is large and complex; construction will undoubtedly have disputes within it. Wide ranges of dispute resolution techniques are available in the construction industry.

Negotiation is the most efficient tool to resolve conflict or disputes and most practical and healthy for all parties involved. Some disputes cannot be resolved through negotiation due to the disagreement of the parties and may result in the process of arbitration or litigation.

If negotiation is not successful, then look to the alternative dispute resolution methods available. Actual experience of ADR processes such as mediation, dispute review boards, resolution advisers, expert determination, neutral evaluation, and med-arb in the Middle East is minimal but it is growing. The ADR methods have been found satisfactory in the USA and other countries, which have already adopted them but most of the ADR methods are rarely used in Middle Eastern countries.

In the Middle East, disputes that are not resolved by negotiation are resolved in the framework of Conciliation, Arbitration and Litigation. Most parties in the region regard arbitration as the final binding method of dispute resolution.

Finally, disputes and conflict of any nature are unpleasant. Disputes must be resolved through dispute avoidance techniques or ADR processes, otherwise the result is the lengthy processes of arbitration or litigation which cause the unnecessary wastage of time, money and resources and can lead to the dissolution of the working relationships of the parties.

References
2. Royal Institution of Chartered Surveyors, Dubai Sector, Seminar at API Tower, Dubai, UAE, 25 October, 2005, Getting Paid by Steven Hunt, Mason Galadari
3. Part 1 Introduction to Arbitration by Kay Linnell, FCIArb, FCA, MBA, MBIM, CFE, MEWI.
5. Middle East Overview by Stephen Jagusch, James Kwan, Allen & Overy LLP

William Lacey (Hounslow) Ltd v Davis (1957)

A contractor tendered for reconstruction of war-damaged property and was led to believe that they would receive the contract. William then prepared, at Davis’s request, calculations and estimates which Davis used to negotiate a claim with the War Damage Commission, Davis then sold the property without concluding a contract for the reconstruction.

Held that a promise by the defendant to pay a reasonable sum for these service could be implied.
Application of Delay Damages and Penalties from the Legal Point of View

Palitha Premasiri Gamage FRICS, ACIArb

Project Quantity Surveyor in Royal Estates, Oman

worked as a quantity surveyor for over 20 years in overseas and 7 years in Sri Lanka. Become an expert in modern construction procurement strategies while working as PQS for Emirates Twin Towers in Dubai, Qasr Al Alam Guest Palace in Muscat, and sub-contractor’s QS for Power Station “G” in Jabel Ali and National Bank of Dubai Head Quarters. Regular speaker in CPD event for SLQS in Oman.

At the outset, it is important to consider the contents of clauses in connection with delay damages / penalties included in the widely used standard forms of contracts in Middle Eastern countries.

Clause 47 of the FIDIC Fourth Edition 1992 (re-printed) Red Book regulates the relationship between the employer and the contractor in case of failure by the contractor to comply with the requirement to complete work in accordance with clause 48 within the time for completion as specified in clause 43 or, if applicable, within any extended time in accordance with clause 44.

Clause 47 also provides that if the contractor fails to complete the whole or any specified section of the works by the due date, the employer may deduct or recover from the contractor the daily amount specified in the contract up to a given maximum amount. If the works are handed over on a piecemeal basis, the amount of liquidated damages is reduced proportionately.

Sub-clause 8.7 (Delay Damages) of the FIDIC 1999 Red Book deals with the payment of delay damages by the contractor to the employer (?) for late completion of the works (or a section of works) by reference to the time for completion of the works stated in the contract. The delay damages are calculated on a daily basis but with an upper limit, measured as a percentage of the final contract price, provided for in the Appendix to Tender. It should be noted that, even if delay damages are paid by the contractor, he is still under an obligation to complete the works or any other duties that he may have under the contract.

Though it is not a mandatory requirement for construction professionals to be fully conversant with the law, they ought to have knowledge of the legal basis behind the clauses in contracts through which they work and may be exposed to deal with legal professionals as well. This article is written based on the English law of contract.

The Legal Nature of Damages

Damages are the legal term for a court award of monetary compensation. The object of awarding damages is normally to put the injured party in the same position they would have been if the contract has been performed. So, the claimant is entitled to claim for what he would have expected to get if the contract had gone ahead (less any money already received). This can be contrasted with the position in the law of tort, where the aim is to put the claimant in the position which he would have been in if the tort have never been committed (pre tort position).

Claims in contracts are for actual loss. The injured party can never get more in damages than the loss which he has suffered. If the party has suffered no loss and sues he will get only nominal damages - it is not unknown for this to be as little as £ 2 – and may not get his costs. The award of damages is not to punish the party who is in breach of contract, but simply to compensate the injured party.

Distinction between Liquidated Damages and penalties

The actual description of the sum or payment is of little importance, even if the words “penalty” or “liquidated damages” are used. The distinction between the two, and the tests to be applied, have been more clearly stated in the following passage from the judgment of Lord Dunedin in Dunlop Pneumatic Tyre Co. Ltd v New Garage & Motor Co. Ltd. (1915).

“1. Though the parties to a contract who use the words ‘penalty’ or ‘liquidated damages’ may prima
facie (based on a first impression) be supposed to mean what they say, yet the expression used is not conclusive. The court must find out whether the payment stipulated is in truth a penalty or liquidated damages.

2. The essence of a penalty is a payment of money stipulated as in terrorem of the offending party; the essence of liquidated damages is a genuine covenanted pre-estimate of damage.

3. The question of whether a sum stipulated is penalty or liquidated damages is a question of construction to be decided upon the terms and inherent circumstances of each particular contract, judged as at the time of making the contract, not as at the time of the breach.”

The limit specified in the appendix to the tender would, in the United Kingdom and other jurisdictions maintaining the penalty doctrine, provide an argument that the prescribed damages were not a genuine pre-estimate.

A penalty clause is unenforceable before the law. The aim of such a clause is to punish the party in breach and the courts have held such an aim impermissible. A clause which is held to be a penalty clause is not struck out of the contract, but it will not be enforced by the court beyond the actual loss of the party seeking to rely on the clause. (Jobson v Johnson (1989) 1 All ER 621. The court is not required to consider whether the party in breach is entitled to relief; the court automatically relegates the party seeking to rely on the penalty clause to a claim in damages.

Advantages of Inclusion of Liquidated Damages (LDs) Clause

The advantage of having a liquidated damages provision can be said to be that the damages payable by the contractor in culpable delay are limited and the employer who receives late completion does not have to prove his losses due to such delay. Additionally, the liquidated damages provision acts as an exhaustive remedy for damages for the late completion. Therefore, the provision provides certainty for both parties, enabling them to assess and price the risk.

Deduction of LDs

In order to decide whether liquidated damages are to be imposed, two simple questions should be asked: Has the date for completion passed? If so, is the work complete? If not, then liquidated damages are deductible. In the FIDIC Fourth Edition, this issue is complicated with reference to “Time for Completion” (Clause no.43) and the “Taking-Over Certificate” (Clause no. 48). This is because, in the typical situation where a Contractor is in a delay but disputes that it is his fault and where applications for extension of time have been submitted and he would argue that the Employer is not entitled to deduct damages, the employer would argue that when the contract is read as whole, the right to deduct is clear enough to succeed. Nevertheless, to be sure of the matter, an Employer would be well advised to clarify this issue.

Indeed, the Time for Completion is variable until the last extension of time has been granted. Further, the employer is permitted to deduct “the amount of such damages”: This phrase suggests that the total amount of the damages needs to have been established before deduction may take place. However, the employer would counter argue that sub-clause 47.1 suggests that deduction of damages should take place prior to completion based on the phrase “The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the works, ………. And liabilities under the contract”.

Three more questions need to be answered by referring to Clause 47. Let us consider them now:

• Do LDs represent an exclusive remedy for the contractor’s delay of completion? Answer - Please refer to the phrase in Clause 47.1 “(which sum shall be the only monies due from the Contractor for such default)”. However, this issue is more complicated in complex projects where many subcontractors or contract packages are involved.

• Is the employer entitled to deduct the LD’s of one particular project delayed by the contractor from the monies due from other projects carried out by the same contractor? Answer – Clause 47.1 suggests that “….such damages from any monies due or to become due to the Contractor.” There is no express limitation to sums becoming due under that particular project. Thus the contractor may arguably
agree to deduct LDs from sums due under, for example, another contract with the same employer.

- Is the engineer empowered to deduct LD’s from the interim certificate? Answer - No, the deduction of LDs is left strictly to the employer.

Un-liquidated Damages

When there has been a breach of contract, the injured party is entitled by common law to claim such damages as would put him ‘so far as money can do it, in the same situation as if the contract had been performed.’ – Robinson v Harman (1848).

These damages are not pre-estimated and will be awarded by the courts.

Caparo Industries Plc -v- Dickman and others [1990]

The plaintiffs sought damages from accountants for negligence. They had acquired shares in a target company and, relying upon the published and audited accounts which overstated the company’s earnings, they purchased further shares.

Held: The purpose of preparing audited accounts was to assist company members to conduct business, and not to assist those making investment decisions, whether existing or new investors in the company. The auditors did not owe a duty of care to the plaintiffs. Liability for economic loss for negligent mis-statement should be limited to situations where the statement was made to a known recipient for a specific purpose of which the maker was aware, and upon which the recipient had relied and acted upon to his detriment. The law has moved towards attaching greater significance to the more traditional categorisation of distinct and recognisable situations as guides to the existence, the scope and the limits of the varied duties of care which the law imposes. The House laid down a threefold test of foreseeability, proximity and fairness and emphasised the desirability of incremental development of the law. The test was if “the court considers it fair, just and reasonable that the law should impose a duty of a given scope upon the one party for the benefit of the other”. Lord Bridge of Harwich: “What emerges is that, in addition to the foreseeability of damage, necessary ingredients in any situation giving rise to a duty of care are that there should exist between the party owing the duty and the party to whom it is owed a relationship characterised by the law as one of ‘proximity’ or ‘neighbourhood’ and that the situation should be one in which the court considers it fair, just and reasonable that the law should impose a duty of a given scope upon the one party for the benefit of the other.”
The Potential of the Method of Measurements used by Engineers and Contractors in Tendering and Subsequent Contract Administration

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The Abstract

Amounts for payments for the work done in Measure & Pay contracts are arrived at by measuring the quantities of items which have pre-agreed unit rates. In measure & pay contracts, the final price is dependent upon quantities. So, the final price is dependent upon the Method of Measurements we use to measure the quantities.

Some professionals in the construction industry measure the works arbitrarily without considering the specified method of measurement for the project. Their perception is that it is not significant to concentrate heavily on the method of measurements enacted in the contract. But events that have arisen in the construction industry in this regard indicate that it is not so simple to ignore the effect of the method of measurements.

This is mainly because quantities calculated using two different methods could provide significantly different quantities. So, significantly different quantities produce significantly different final prices. If parties to the contract adhere to the two different opinions regarding the method of measurement to be used, there could be a construction dispute. As we all know, disputes are most obstructive in construction contracts. They can delay the project with severe consequences to all parties to the contract.

What is the solution? There are several means of resolving disputes by mediation, arbitration, adjudication or in court system while the least expensive method is the use of negotiation. However, what is more important to avoid chances of disputes arising than to find solutions for the disputes? So, what is important is to have a specified method of measurement in the contracts to cover all works and ensure the awareness of both parties of the procedures of the method of measurements stated in the contract to use for the measuring of works.

Through two practical examples of excavation works and concrete works, this article demonstrates the impact of the method of measurements on the final price. In excavation, the example of how extra volume is acquired by soil due to the loosening of soil particles is used for consideration while a second case is dedicated to the possibility of a different method of measurements due to voids placed in suspended concrete slabs. The figures used are for explanatory purposes and not the actual ones.

The Introduction

It is a clear fact which is not limited to the construction industry, but common to all businesses, that the ultimate aim of parties to a contract is to obtain the maximum benefit from the contract. Contractors always seek to obtain the highest price for the work carried out under the contract. On the other hand, employers want to pay minimum price for the works completed under the contract. Based on the determination of price of the contract, there are main three categories of contracts.

1. Contracts that stipulate a fixed lump sum price
2. Contracts that stipulate unit rates and the final price is arrived at by measuring the quantities of items which have pre-agreed unit rates.
3. Contracts where the final price is arrived at by measuring the actual expenses incurred.

Fixed-price contracts belong to Category no 1, measure & pay contracts are under Category no 2, cost reimbursable...
contracts belong to Category no 3 while target contracts are a combination of Categories no 1 and no 3.

The aim of this article is to address the importance of the method of measurements in contracts which fall under Category no 2 because the final price of this type of contract is arrived at by measuring the quantities of items which have pre-agreed unit rates. In measure & pay contracts, final price is dependent upon quantities. So finally, final price is dependent upon the Method of Measurements we use to measure the quantities.

As mentioned above, it is the individual party's interest to maximize their own return from the contract. In other words, Contractors always seek to obtain the highest quantities for the work carried out under the contract. On the other hand, employers want to pay for minimum quantities. So it is the responsibility of the contract to regulate the two parties having different objectives regarding the quantities of contract in a manner without dispute. The major mechanism used in this context in construction contracts is to have a pre-defined Method of Measurement system agreed upon by both parties at the time of signing the contract, by inserting the Method of Measurement in the contract. Unfortunately, some may neglect the importance of the method of measurement and pay minimal attention to the method of measurement. We will see the impact of negligence of the Method of Measurement in detail through a practical construction example.

The Discussion
Some professionals in the construction industry measure works as per their wish. The danger is that these professionals engage in contracts relying on the quantities they calculated using their own methods without even seeing the methods of measurements specified in the tender. People who don't have much exposure to the contractual aspects of construction contracts may think that it is not significant to concentrate much on the method of measurements enacted in the contract. But it is not so easy to neglect the dilemma an organization has to face if it neglects the method of measurements. The loss to the organization might be in the realm of millions of dollars.

Another aspect of negligence of the method of measurement is that it could be a situation that leads to construction dispute. As we all know disputes are most obstructive in construction contracts. It can delay the project with severe consequences to all parties of the contract. What is the solution? There are several means of resolving disputes by arbitration, adjudication, in court system or mediation while the least expensive method is the use of negotiation. But what is more important is to avoid chances of arising disputes than to find solutions for the disputes. An old saying is that prevention is more important thanremedying defects. So if the issue is not agreeing upon a defined method of measurements for measuring the works at the time of signing the contract, then how can disputes on measuring of the works be prevented? It is very simple to have a well defined method of measurements in the contract and focus the necessary attention on it. There are standard ‘method of measurements’ documents published by various institutes. To name a few: CESMM3, POMI, SMM7, ICTAD … It is not necessary to agree to use standard methods of measurements such as CESMM3, POMI, SMM7, but what is required is the definition of a methods of measurements to measure the work in a consistent manner which suits the conditions of the project.

Ignoring the method of measurement can take place in two forms.

1. The consultant does not include the proper method of measurement.
2. The contractor disregards the method of measurement stated in the contract.

First we consider Case One. Construction works are completed without having proper agreement on how to measure the works. At the time of payment disputes arise as there are different opinions regarding the measurement of works. Therefore ignoring the method of measurement in construction contracts is dangerous.

In Case Two, the outcome of ignoring the method of measurements has two possibilities.

1. The contractor calculates lower rates than if the method of measurement had been considered.
2. The contractor calculates higher rates than proper if the method of measurement had been considered.

In first case, the contractor loses some money and receives less payment due to the errors of his calculation while in the second case, the contractor loses the chance of
winning the completion of a project due to the errors of his calculation. Both are harmful to the contractor.

The examination of two practical examples will demonstrate the impact of the method of measurement on final price.

Case 1
We will examine a practical example of excavation. Excavation works is a category that is included in many construction contracts. This is because excavation works are necessary in building construction as well as in civil engineering constructions such as roads, bridges, etc … It is also noted that the quantities involved in excavation works are generally large, making a big impact on the final price.

For the measuring of excavation work, there are two basic methods.
(1) Measure the size of pit/ trench excavated. (Net volume)
(2) Measure excavated materials. (Gross volume)

Before the excavation, soil is in a compacted form. After the excavation, soil particles are loosened. The loosening of soil particles will yield a final quantity of greater volume. Undoubtedly, the second method, which measure loose soil, will have a large quantity than that calculated from the first method which measures the opening created by excavation. The expansion of soils will vary with soil type.

Assume the following for our example:
Factor of expansion of soil = 1.4
Quantity (net) = 188,000 m³
Rate quoted by contractor = $ 10/m³

Scenario 1.
The contract does not specify method of measurement:
Both parties aim to maximize their return
The contractor is claiming $ 2,632,000 for a quantity of 263,200 m³ (188,000 x 1.4).
The client is ready to pay only $ 1,888,000 for a quantity of 188,000 m³.
A difference of more than half a million would be a root cause for a dispute.

Scenario 2.
The contract specifies first method which is to measure the net excavation as a method of measurement:
The contractor arbitrarily uses his own method of measuring gross volume to calculate his rate.
The contractor calculates it costing $ 10 per cubic meter of loose volume excavated. Though he has to convert this rate to the net rate ($ 10 x 1.4 = $ 14), he does not look at the method of measurement specified.
At the end of project, the contractor receives only $ 1,880,000 for a quantity of 188,000 m³.
He argues for $ 2,632,000 for a quantity of 263,200 m³ (188,000 x 1.4) based on his own method of measurement.
Finally, the contractor receives only disrepute instead of $ 1,880,000 for a quantity of 188,000 m³ as the consultant brings the specified method of measurement to his notice.

Scenario 3.
The contract specifies the second method, which is to measure the net excavation as a method of measurement:
The contractor arbitrarily uses his own method of measuring net volume to calculate his rate.
The contractor calculates it costing $ 14 per cubic meter of net volume excavated. Though he has to convert this rate to the net rate ($ 14 / 1.4 = $ 10), he does not look at the method of measurement specified.
At the end of bidding, the contractor’s price of $ 14 makes his tender price too high, as compared to another contractor (who may be pricing their tender at $ 13 / net cubic meter) and he loses the project. Is just because of negligence of the method of measurement specified in the contract.

Case 2
We will examine another practical example to further demonstrate the impact of method of measurement on final price. Concreting works is also a category that is included in many construction contracts. This is because concrete is the most accepted solution as a structural element in building construction as well as civil engineering constructions such as roads, bridges, etc… It is also noted that the quantities involved in concrete works are generally large making a big impact on the final price.

It is common practice to have openings in concrete slabs for various purposes. In the practical sense, it is easier to ignore the openings and measure the whole area once, measuring the volumes without deducting for voids.
However, there is a limit to the size of voids as ignoring large voids is not acceptable practice, especially to clients. Generally, the limit is 1 m$^3$ meaning that any void less than 1 m$^3$ in volume would not be deducted and hence the contractor would get payments even if he has not concreted that part.

Another case that we have to concentrate on here is formwork. It is evident that when making a void, it may require some additional formwork. It is important to specify in the contract that this additional formwork related to voids is going to be measured. Some may prefer not to measure these additional formworks as they are cumbersome measurements and in order for themselves to get compensated from paid prices for voids.

Also, there are two types of openings, internal and external. Internal openings mean openings which are completely inside of the concrete slabs. External openings mean openings which are at the boundary of the concrete slabs. So it is clear that there could be more options for specifying the method of measurement. What is needed from the contractor’s side is clear identification of the difference between the work to be done and the work to be paid and adjustment the rates accordingly. Contractor prices need to be more competitive as well as profitable so as not to lose.

Assume the following for the example:
Dimensions of the suspended concrete slab = 20m * 50m *200mm

Inside of the suspended concrete slab: no of 1m *1m openings = 20
At the boundaries of suspended concrete slab: no of 1m *1m openings = 5
Unit rate for concrete works quoted by contractor = $ 100/m$^3$
Unit rate for formwork works quoted by contractor = $ 30/m^2$

Consider the possible different ways of measuring the concrete work:
(1) Measure complete slab without deducting any openings.
(2) Measure complete slab deducting only external openings which are at boundaries
(3) Measure complete slab deducting all openings.

Consider the possible various methods of measurement for the formwork of this case:
(1) Measure all formwork without deducting for soffits of openings
(2) Measure all formwork without deducting for soffits of internal openings
(3) Measure all formwork without deducting for soffits of external openings
(4) Measure all formwork, deducting for soffits of all openings
(5) Measure formwork without deducting for soffits of openings but also without adding any sides of openings.
(6) Measure formwork without deducting for soffits of internal openings but also without adding any sides of openings.
(7) Measure formwork without deducting for soffits of external openings but also without adding any sides of openings.
(8) Measure formwork deducting for soffits of all openings but also without adding any sides of openings.
(9) Measure formwork without deducting for soffits of openings but also without adding sides of external openings.
(10) Measure formwork without deducting for soffits of internal openings but also without adding sides of external opening.

(11) Measure formwork without deducting for soffits of external openings but also without adding external sides of opening.

(12) Measure formwork deducting for soffits of all openings but also without adding external sides of openings.

Observe how many different approaches are available for the measurement of works. If concerned with the measurement of concrete, there will be sixteen different approaches. For the sake of simplicity we will consider only three possible methods of measurements for the measuring of formwork which are the most critical.

1. Measure all the formwork including sides of openings without deducting soffits of any openings.
2. Measure all the formwork including sides of openings but deduct soffits of all the openings.
3. Only measure formwork in slab without including sides of any openings but deduct soffits of all openings.

The formwork calculations are as follows:

<table>
<thead>
<tr>
<th>Method of concrete measurement</th>
<th>First method</th>
<th>First method</th>
<th>Second method</th>
<th>Second method</th>
<th>Second method</th>
<th>Third method</th>
<th>Third method</th>
<th>Third method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method of formwork measurement</td>
<td>First method</td>
<td>Second method</td>
<td>Third method</td>
<td>First method</td>
<td>Second method</td>
<td>Third method</td>
<td>First method</td>
<td>Second method</td>
</tr>
<tr>
<td>Quantity of Concrete (m3)</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>199</td>
<td>199</td>
<td>195</td>
<td>195</td>
<td>195</td>
</tr>
<tr>
<td>Quantity of formwork (m2)</td>
<td>10,17.2</td>
<td>992.2</td>
<td>975</td>
<td>1017.2</td>
<td>992.2</td>
<td>975</td>
<td>1017.2</td>
<td>992.2</td>
</tr>
<tr>
<td>Price of Concrete</td>
<td>20,000</td>
<td>20,000</td>
<td>20,000</td>
<td>19,900</td>
<td>19,900</td>
<td>19,900</td>
<td>19,900</td>
<td>19,900</td>
</tr>
<tr>
<td>Price of formwork</td>
<td>30,516</td>
<td>29,766</td>
<td>29,250</td>
<td>30,516</td>
<td>29,766</td>
<td>29,250</td>
<td>30,516</td>
<td>29,766</td>
</tr>
<tr>
<td>Total price</td>
<td>50,516</td>
<td>49,766</td>
<td>49,250</td>
<td>50,416</td>
<td>49,666</td>
<td>49,150</td>
<td>50,016</td>
<td>49,266</td>
</tr>
</tbody>
</table>

Therefore, we will have nine possible scenarios. The table below depicts the outcomes (final prices) for these nine scenarios.

The first combination gives the highest price of $50,516 while the last combination gives the lowest price of $48,750. The difference is $1,766 which makes 3.5% profit. In highly competitive construction contracts, which have limited profit margins of around 5%, can it be possible to ignore a 3.5% profit?

**Conclusion**

As we have seen in the two above examples, there could be large differences in final prices based on the method of measurement used to measure the works. The strength of method of measurement over cost engineering is high and the knowledge of methods of measurement will play a significant role in cost management.

Finally it should be stressed that, contractually, no method can be said to be superior over the rest. This is because once the method of measurement is included in the contract, the contractor can decide prices based on it and can increase or decrease according to differences in the specified method of measurement and actual works. In other words the contractor would be able to make adjustments in his rates when he is aware of the advantages and disadvantages of the method of measurements compared to actual works he needs to carry out. However, for the comfort and suitability of measurement there could be a ‘best’ method of measurements and a ‘bad’ method of measurements. Let’s imagine a situation where the method of measurement dictates deducting each
opening including very small ones in plastering works. How cumbersome this is method compared to measuring the whole area without deducting openings. Here it is evident that the second method (measuring the whole area without deducting openings) is more comfortable in the context of ease of measurement.

What is important is having a specified method of measurement in the contract to cover all works with both parties aware of the procedures of the method of measurements stated in the contract to use for the measuring of works. The golden rule to avoid disputes regarding the measurement of works is for organizations to have more competent and knowledgeable cost engineers who are conversant on the contractual matters.

Regina -v- Chung Tak Lam Mary Lam Patricia Lam Christopher John Lam and Peter Brennan (T/a ‘Namesakes of Torbay’) and Borough of Torbay [1997]

The claimant sought damages after the planning authority allowed the first defendant to conduct a manufacturing business in the course of which spraying activities took place which caused them personal injuries and loss of business. Held: The planning system is a regulatory system as envisaged in X (Minors), such that there should be no private right of action for a breach of statutory duty. The claim failed.

The first defendant started work in Unit 1 at the rear of No. 34 and constructed a paint spraying filter and extractor which ventilated the paint spray fumes out through his premises at the rear of 34 to discharge at low level into the backyard of the appellants. Following complaints starting in September 1989 from the appellants and a number of other local people who were adversely affected by fumes (including a specific complaint by the second plaintiff that the effects included nausea, dizziness and memory loss), the respondents’ Environmental Health Officer wrote on 21st September 1989 to the first defendant recommending that his spraying booth be moved to first floor level so that the fumes could be extracted above roof ridge level, and that the planning department be contacted to see if planning permission was required. The urgent attention of the first defendant was demanded. On 28th September 1989 the Environmental Health Officer asked the Planning Department to check the planning permission in respect of the first defendant’s premises. The first defendant accordingly applied on 9 October 1989 for planning permission for “re-location of extractor system” and provided a plan of a “chimney” on the roof of the premises at the rear of 34 for escape of the fumes. Meanwhile, the appellants’ complaints continued. Permission was granted for the chimney work by a delegated decision of the Planning Officer on 24th November 1989, the chimney being installed in January 1990

So far as the third head of claim was concerned i.e. that based on the alleged failure to take enforcement action, the judge held that the principles applicable to pollution and planning were essentially similar, enforcement also being a matter which the local authority has to consider in the public interest. By way of analogy with the position of the Crown Prosecution Service (see Elgazzouli-Daf -v- Commissioner of Police of the Metropolis [1995] QB 335), the judge held that the decision of a planning and enforcement authority as to taking enforcement proceedings in the public interest or in the interests of the inhabitants of a particular area is one which should not be influenced by considerations as to whether there might be a claim for negligence if action was or was not taken in a particular case.
Contractor’s Entitlement to Extension of Time and Prolongation Costs - Under Fidic 4th Edition

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Why is this page here? ABSTRACT

All modern building and engineering contracts contain provisions for extensions of time in the event of delay. The nature of the work and the environment in which the work is carried out are such that it is almost inevitable that events and circumstances will cause completion of the work to be delayed beyond the original completion date. Notwithstanding, claims for extension of time probably cause more disputes than any other contractual or technical issues. This article aims at discussing a contractor’s entitlement to extension of time and prolongation costs under FIDIC 4th edition.

1.0 The Contractor’s Entitlement to Extension of Time

Clause 44 is the only clause in FIDIC 4th Edition (1987) where the Engineer can determine an extension of time. The causes stated in sub-clause 44.1 (Extension of Time for Completion) are appropriate to whatever event causing delay which would fairly entitle the Contractor to an extension of time. Further, this sub-clause makes sure that the time is not set at large, and preserves the employer’s right to deduct liquidated damages for late completion by the contractor.

Paragraph (a) of sub-clause 44.1 (Extension of Time for Completion) deals with the amount or nature of extra or additional work and is applicable to all sub-clauses related to variations and varied works, which are sub-clauses 51.1 (Variations), 5.2 (Priority of Contract Documents), 7.1 (Supplementary Drawings and Instructions), 13.1 (Work to be in Accordance with Contract), 18.1 (Boreholes and Exploratory Excavations), 17.1 (Setting-out), 20.3 (Loss or Damage Due to Employer’s Risks), 31.2 (Facilities for Other Contractors), 49.3 (Cost of Remediying any Defects) and 65.3 (Damage to Works by Special Risks). Apart from these sub-clauses paragraph (a) is applicable to sub-clause 38.2 (Uncovering and Making Openings) and 50.1 (Contractor to Search).

Paragraph (b) of sub-clause 44.1 (Extension of Time for Completion): “any cause of delay referred to in these Conditions” is applicable to all events causing delay for which the contractor is entitled to an extension of time stated in the other clauses. The sub-clauses related to paragraph (b) are sub-clause 6.4 (Delays and Cost of Delays of Drawings), 12.2 (Not Foreseeable Physical Obstruction or Conditions), 27.1 (Fossils), 36.5 (Engineer’s Determination where Test not provided for), 40.2 (Engineer’s Determination following Suspension), 42.2 (Possession of Site and Access Therto) and 69.4 (Contractor’s Entitlement to Suspend the Work).

Paragraph (c) of sub-clause 44.1 (Extension of Time for Completion) itself is the only provision that deals with the events related to exceptionally adverse climatic conditions. Paragraph (d) of sub-clause 44.1 (Extension of Time for Completion) “for any delay, impediment or prevention by the Employer” is applicable to sub-clauses 31.1 (Opportunities for Other Contractors) and 59.1 (Definition of “Nominated Subcontractors). The last paragraph (e) of sub-clause 44.1 (Extension of Time for Completion) deals with “other special circumstances” and any event referred to in the Contract should not be considered as ‘under special circumstances’.
Pursuant to sub-clause 44.2 (Contractor to Provide Notification and Detailed Particulars), the Contractor has to provide a notification to the Engineer with a copy to the Employer within 28 days after such an event has first occurred and must also provide detailed particulars of any extension of time to which he may consider himself entitled within 28 days or a reasonable time as may be agreed by the Engineer. Otherwise the Engineer is not bound to make any determination. However, sub-clause 44.3 (Interim Determination of Extension) further states that when such an event has a continuing effect and it is not practical for the contractor to submit detailed particulars within the period of 28 days, he can submit interim particulars at intervals of not more than 28 days and the final particulars within 28 days of the end of the effects resulting from the event.

2.0 The Contractor’s Entitlement to Prolongation Costs

Under the above-mentioned sub-clauses related to extension of time, the amount of costs incurred in relation to such events should be added to the contract price, except for exceptionally adverse climatic conditions, for which there is no mention with regard to the entitlement of cost stated within those conditions of the FIDIC fourth edition. It is important to note that in relation to variations and varied works which are valued under Clause 52, the contractor is entitled to profit as well. The ‘prolongation costs’ are the additional time related costs associated with delays caused by the employer. Generally, the prolongation costs include: prolonged site overheads, recovery of head office overheads, financial charges for the additional costs, financing charges due to delayed release of retention, etc. The prolongation costs should be apportioned to each event and it is always good for the contractor if he could show the additional payment due to each event separately in his claim.

3.0 Procedure for Claim

The contractor’s entitlement to prolongation costs will be meaningless if he does not secure his right to the claim in a proper and timely manner, in line with the provisions of the contract. Pursuant to sub-clause 53.1 (Notice of Claim) of the sub-clause 44.1 (Extension of Time for Completion), the contractor has to give notice to the engineer, with a copy to the employer, of his intention to claim any additional payment. Such a notice should be given within 28 days after the event giving rise to the claim has first arisen. Further, pursuant to sub-clause 53.2 (Contemporary Records), the contractor shall keep contemporary records as may reasonably be necessary to support any claim for which the notice has been given and he may subsequently wish to make. Such contemporary records include idle time of resources, resource utilization pattern, site overheads during a prolongation, etc.

Pursuant to sub-clause 53.3 (Substantiation of Claim), the contractor shall send to the engineer an account giving detailed particulars of the amount claimed and the grounds upon which the claim is based, within 28 days or such other reasonable time as may be agreed by the engineer. Generally the detailed particulars related to a claim are: facts, contractual provisions, arguments, client’s liability to provide relief and the quantum, which includes the amount of extension of time amount of additional payment, etc. Sub-clause 53.4 (Failure to Comply) deals with the situation where the contractor fails to comply with any of his obligations under sub-clause 53.1 (Notice of Claim), 53.2 (Contemporary Records), or 53.3 (Substantiation of Claim) and defines the extent of his entitlement under such circumstances. If the contractor does not comply with the above mentioned procedure, his entitlement to payment may be limited. Pursuant to sub-clause 53.5 (Payment of Claims), the contractor is entitled to have included the amount in respect of any claim in any interim payment certified by the engineer pursuant to clause 60. Further, this sub-clause is intended to remove any possibility of contention that payment in respect of a claim must await the finalisation of the whole claim.

CONCLUSION

Generally, the granting of an extension of time is based on several factors such as the engineer’s interpretation of the Contract, the engineer’s assessment of the circumstances involved during the execution of the work, the basis for the claim stated by the contractor in his notification, etc. Therefore, to succeed in time extension and prolongation claims, the contractor must be aware of his entitlements under the contract and should comply with the conditions of contract in every circumstance possible.
Dubai Metro

Lakshman Gunatilake MInstCES, ACIarb, PMP, MACostE, MIIE(SL), IEng

Lakshman Gunatilake possesses over 25 years construction experience in the fields of engineering, quantity surveying, contract administration and project management, gained through major international consultancy and contracting establishments in Sri Lanka, the Middle East and Far East Asia.

Before travelling himself on the red line of the newly completed Dubai Metro Light Rail Network on 09 September 2009, His Highness Sheikh Mohammad Bin Rashid Al Maktoum, Vice President and Prime Minister of the UAE and Ruler of Dubai, inaugurated with pride the first urban metro network in the Gulf Arab countries.

By launching as a flagship project in the UAE, the main aim of an overall AED 28 Billion Dubai Metro project is to provide an easy mode of daily travel for the increasing working class of the Emirate. The network is Dubai’s version of the London Underground, New York’s Subway, Vienna’s U-Bahn, Munich’s S-Bahn and various other mass-transit systems in other parts of the world. The Dubai Metro is a driverless and fully automated network system and also the longest fully automated railway system in the world. This driverless system is designed to receive power for the railway from a continuous rigid conductor fixed at the side of the track or within the two rails, a system known as the third rail current collection system.

The operation of the Dubai Metro is carried out at present with the hold up of feeder taxi, bus and ferry services provided by the Roads and Transport Authority (RTA) of Dubai that carry passengers to and from the Metro Stations as ancillary services to the Metro network. At present, every station of the network is served by taxis. Stopping bays have been provided to facilitate drop off and picking up of passengers. While encouraging the public to use the Metro as much as they can, with the provision of taxi, bus and water taxi feeder services, the RTA is providing three parks and ride stations having a capacity of about 9,000 car parking spaces. It has been learned that the RTA has considerably increased the number of feeder buses running in connection with the Metro Scheme. The idea is to localize the feeder buses servicing the station around that area so that passengers will not have to walk more than 100 meters from their homes to catch the train. Considering the comfort of metro passengers, in addition to the trains, all servicing foot-bridges, buses and bus stops have now been air conditioned.

The necessity for a transport system of this kind has been identified in Dubai, considering the increasing population of the Emirate due to the growth of the economy, mainly due to increased tourism, property development, air transport and financial services. The traffic congestion in the Emirate has also resulted in authorities looking for an alternative massive transport system of this nature. It is forecasted that the population in Dubai will reach three million people with an annual increase 6.4%.

It was Dubai Municipality that undertook preliminary studies of the project that started in 1997, based on the planning directives given by Dubai’s ruler, His Highness Sheikh Mohammed bin Rashid Al Maktoum. Following their study, Dubai Municipality observed that the provision of a rail system would undoubtedly provide some relief to the growing traffic problem. They also expected that the Metro would support continuing urban development in Dubai. Dubai Municipality then awarded the preliminary engineering contract to M/s Systra Parsons and a consortium of four companies, named Dubai Rapid Link Consortium (DURL), headed by Japan’s Mitsubishi Heavy Industries (MHI), was asked to build the first two lines of this high-tech driverless rapid transit system. Other consortium members include the Mitsubishi, Obayashi and Kajima corporations and the Turkish Firm Yapi Merkezi. M/s Atkins later undertook the designing of the Works. The overall responsibility of managing the project was then transferred to the Roads and Transport Authority, formed in the year 2005, which is also responsible for other modes of transport services such as the public bus and ferry services. As stated once by the RTA Chairman, “The aims of the Metro are to provide an alternative mode of transport to ease congestion, save
passengers’ travelling time and improve mobility within the city...It is intended to provide transport coverage and reach all strategic areas of the city and develop the network to branch out into the suburbs with future extensions.” Work on this project officially commenced in March 2006. Since its partial completion and launch in September 2009, it was recorded that Dubai Metro served an average of about 60,000 passengers a day. The responsibility for operation and maintenance of the metro network was given to M/s Serco who possess operation experience with the London Dockland Light Railway network.

**System Information:**
- **City Population:** 1,492,000 (2006), forecast 5.25 million by 2020
- **Developer/Operator:** Roads & Transport Authority (RTA)
- **Date Opened:** Red Line - 09/09/2009
- **Date Planned:** Green Line - 10/10/2010
- **Total Planned System Length:** 318km (by 2020)
- **Gauge:** 1,435mm
- **Lines**
  - Red: 52km (32.3 miles)
  - Green: 17.6km (10.9 miles)
- **Design Speed (Max.):** 100km/h (62mph)
- **Stations**
  - Red: 29
  - Green: 18 (+2 Red Line interchanges)
- **Operating Hours:** 05.00–00.30
- **Number of Trains required:** 87 (Red Line: 62 five-car sets, Green Line 25 three-car sets)
- **Builder:** Kinki Sharyo
- **Power Supply:** 750VDC third rail

**Forms of Contract and Method of Measurements**

It is stated that the major construction Contracts of the Dubai Metro Project have been procured mainly through the FIDIC 4th Edition, 1982, reprinted in 1992, with amendments. Further amendments have been carried out by the parties to adjust terms and conditions to suit ad-hoc requirements depending on the nature of each construction package. Some of the service provider and supplier Contracts were prepared based on standard international commercial terms and conditions. It has been noticed that the CESMM 3 has been used as the method of measurement for the measuring of construction works, with specific alteration to suit local norms in the civil engineering industry.

**Infrastructure of the network**

**The Red line**
The red line is 52.1 km long and runs from Al Rashidiya to Jebel Ali. The red line has 29 Metro Stations out of which 10 stations were ready at the date of opening the network for the public. It takes approximately an hour to travel from one end to the other of the red line and it is estimated that the red line carries about 32,000 passengers within an hour.

**The Green Line**
The green line is 22.5km long and runs from Al Ittihad Square to the Rashidiya bus station, through Deira City Centre and Dubai Airport Terminals 1 and 3. The green line has 18 Metro Stations. The green line is planned to extend progressively to serve the Deira Dubai and Bur Dubai central areas and souks up to major shopping centres such as New Burjuman and Wafi City. Interchange stations will be at Al Ittihad Square and New Burjuman.

**Underground Sections**
Red Line - From the intersection of the Sheikh Rashid and Sheikh Khalifa Bin Zayed roads to just before the intersection of the Salahuddin and Abu Bakr Al Siddique roads

Green Line - From the Garhoud to Oud Metha roads

It should be noted that all underground works have been carried out without disturbing residents and without affecting the surrounding buildings and also the infrastructure provided for the public.

**Overhead Sections - Viaduct**

Except in the above-referenced underground sections, trains run in the elevated viaducts. A viaduct is a bridge composed of several small spans. The term viaduct is derived from the Latin via for ‘road; and ducere, ‘to lead something’. In the Dubai Metro, all the tracks ensure full isolation and not a single location of it crosses highways.

**Brief about the design and engineering of the Viaduct**

**Foundation**

Most of the spans of viaduct are supported on single span circular RC columns with pier heads to support the deck. Most of these single columns are supported on bored
mono piles of diameter 2200 mm and 2400mm, to aid the speedy construction. That also helped to minimize the footprint required for excavations in the congested areas. These piles and piers have been connected together with a structure like a pile cap.

It was found from tests that the piles needed to be large enough to resist the significant moments generated from out-of-balance forces from the deck, due to horizontal alignment curvature, lateral seismic loading, wind loading, eccentric train loads and other effects.

**Substructure**

Structural elements included in the substructure of the viaduct are reinforced concrete piers, pier heads and abutments. The pier heads were cast by filling cast in-situ concrete into thin precast concrete shells. The pier heads have pre-stressed in stages after erection at site. However some internal pier heads were casted in-situ. A pile foundation system with a large diameter bored pile has been used.

**Superstructure**

The superstructure of the viaduct is typically a U-shaped precast RC cross section casted in segments using either long line or short line moulds. Overhead gantries were used to put viaduct sections in place. All standard codes of practice in construction have been observed from inception to completion of the project.

**Trains**

The trains, with their full system included, were supplied by M/s Kinki Sharyo, with a contract for about 385 cars at the Contract Price of about $456.2 million. When the train is fixed with a set of five cars it is about 75m long. These cars are fully air-conditioned, as designed to meet specific climatic conditions in Dubai. The train has zones; a standard silver class for the general public, a section for women and children only and a first-class ‘gold’ section that facilitates VIP passengers. The train provides seating for around 400 passengers but with standing room for many more. Numerous double doors will allow fast and smooth flow into trains. The main depot is located at Al Rashidiya and two auxiliary stations are provided at Jebel Ali and Al Qusais. All trains are Wi-Fi enabled.

**Payment System and Fares**

Train fares are paid by passengers via a smart card identified as a Nol card. Holders of Nol cards can have access to other RTA services such as Buses, Water Buses, as well as pay for RTA’s Paid Parking. Passengers should aware that no cash will be accepted to travel in these transport modes. Travelling fares are as announced by RTA and depend on the travel zone and the class, that is, ranging from AED 1.80 to AED 6.50.

**Control system**

**The Operating Control Centre (OCC)**

The Operating Control Centre (OCC) is located at the Rashidiya Depot. It occupies approximately some 10,000 m2. It is a fully equipped control room that comprises a driverless train control system and a communications control system for on-train video surveillance, passenger information, public address and the integrated control centre.

Since its launch in September 2009, the Dubai Metro System noted that driverless trains served better without human interaction. According to the RTA, driverless trains have been selected by authorities considering that it is much safer to operate the system with computers, as people may commit mistakes while on duty, for several reasons. The control system used by the Dubai Metro is known as the Seltrac Automatic Train Control System that can operate without human help. However, when trains shutdown due to human error or a system failure, it is required that well trained drivers interfere and bring the system back to normal and cause train to operate.

The overall operation of Dubai Metro is controlled by this high tech equipment set out at OCC and considered to be the head unit of the entire network. The running and monitoring of trains, stations, tracks and tunnels are all responsibilities of the OCC. It has a viewing gallery, maintenance and support room, a room for the police and a crisis management room.

The control system has three levels:
- Normal operation control level, identified as the bronze level
- Operational control level requiring intervention by an RTA emergency response team, where disruption lasts more than an hour, identified as the silver level
- When issues arises at a level that needs top officials from the RTA & the operator Serco to intervene, when operation is halted for more than four hours, identified as the Gold level.
Function of OCC

The OCC has three main functions

- Controlling the movement of trains,
- Monitoring all equipment throughout the network
- Communicating intelligent information.

The railway line was divided into sections that are overseen by operators at the OCC. As trains are run by computers, Metro operation is very simple and safe. Timetables of trains are fed into the computers in the system that has software backup and extra protection. Train schedules are prepared by the OCC team. Schedules include the frequency of trains and also the distance between trains. Once the schedule is prepared and fed, the system is working on its own with computers. If any changes or adjustment are required, based on continuous analysis by the software system at the Vehicle Control System (VCC), the system does them automatically while communicating with the Vehicle Onboard Controller - a computer installed in every train to ensure smooth operations.

Intelligent system

As it is a self-regulatory system, the VCC gets notified of any emergency via its system and intelligently manages the operations of the train, distance of the train and application of brakes of the train if necessary. Further to the rail system which controls traffic, the OCC also has an operation control system (OCS) which works subsequent to the rail system and monitors all other secondary systems.

The Operating Control System monitors the ventilation system at tunnels, the fire alarm, public address, communication systems, lighting, air-conditioning and environmental control systems. Though this was designed primarily as a driverless train, it has provisions for manual operation. Manual operation takes place when communication systems fail. The driver/operator always stationed in the train gets message to run the train manually and takes it to the nearest station.

It is noted that about 1,900 people are involved with the metro when it is in operation. The entire operation is observed by 3000 cameras fixed at various locations. A well tested and proven Automatic Train Protection (ATP) system monitors the situation for any breakdown and makes all other trains stop, avoiding crashes between trains. ATP is also linked to heat detection and fire alarm systems. No derailment has happened yet and has very minimal chances of happening in the future. One of the interesting features of this control system is the running of an empty train called the ‘sweeping train’ on the track every morning to make sure that the track is entirely safe for passengers.

Passenger safety precautions taken

Through the above-described cameras, intelligent communications and information systems, the main Operation Control room monitors areas of operation of the train network. It plays a major role in evacuating passengers in an emergency. It must take care to manually drive the train to the nearest station. In case the train cannot move, the OCC should send another train to the location for passengers to use. If it is required for passengers to disembark from the train, the OCC will cut off the power supply at the track, 750 Volts DC, for passenger safety. Evacuation points are located every 700m. Passengers may walk up to the nearest point and come down through the staircases.

There may be instances of breakdown of communication between two stations. In such instances, the OCC will mediate and provide buses between two stations for passengers to commute.

Track maintenance vehicles, Platform Screen Doors, derailment containment throughout the Metro main line, continuous fencing and an Intruder Alarm System to prevent people from entering the guide ways are various features which contribute to the safety and reliability of the Dubai Metro. The tracks are protected by concrete barriers and a wayside obstacle detection system.

The future

It is estimated that, when in full operation, the Dubai Metro will carry approximately 1.2 million passengers on an average day and 355 million passengers a year. The budgeted operating cost of AED 570 million a year including costs of staff, maintenance and power is planned to be earned through fares and additional revenues such as advertisement space and joint venture developments and suitable partnering.

As per the plan, the Dubai Metro shall reach all strategic
locations of the city with the development of a branch network into suburbs with necessary extensions. Purple and Blue Lines will be immediate future extensions of the existing network. The Dubai Metro will serve as a means for the improving value of real estate/properties, regeneration in urban areas and economic development of the country as a whole. The Metro will also undoubtedly give a boost to tourism in the country and that will become a starting point to create more employment opportunities.

As understood from studies, the Dubai Metro, when in operation, will reduce traffic congestion by 17 per cent, out of the current total of 30-35 per cent, which can be further reduced by effectively combining the network fully with alternative means of feeder transport which are currently at the planning stage. Some of these include tram feeders, monorail feeders and marine feeders.

It was as early as 1992 when Dubai conducted a feasibility study known as R400, which proposed that Dubai could no longer rely solely on road expansion to cater to its escalating traffic demands. The feasibility study recommended a need for an efficient and cost effective transport system which became a reality through the visionary leaders of Dubai, along with its drive for modernity and environmental concerns, with the birth of the Dubai Metro in the year 2009.

Reference
www.dubaimetro.eu
www.gulfnews.com
Wikipedia

Denzil Williams -v- Jean Robertson (Wrongly Described As Robinson) [1999]

The claimant had sought orders alleging a nuisance caused by his neighbour's fir tree. He appealed a refusal of his claim which had been based upon the absence of any evidence to support it.

Because of the long history of complaints between the parties, the court had also made a Grepe -v- Loam Order against the appellant. Held: The appellant had failed to state sufficiently particularly his complaints against the order. The Grepe v Loam order acted as a filter and not as a bar. Appeal refused.
Managing Value than Managing Cost.

Prasanna Pushpajith  DipSurv., MRICS, ACIArb

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Managing Cost to keep costs down has been a frequently applied measure to improve competitiveness. However, merely keeping the cost down is not enough; the trick is to manage it with efficiency and effectiveness. Here is where managing the value plays its role. Managing cost seeks to do a thing right (efficiency) while managing value seeks to do the right thing (effectiveness). Most people in the industry believe that managing value is done to reduce costs. Managing value does usually result in cost reduction, but it is very different from all other cost reduction techniques. This article attempts to give a clear picture of the above distinction.

How value management differs from the conventional QS process of cost analysis and cost planning.

‘Value Management’ in relation to a construction project, can be defined as an organised approach to the identification and elimination of unnecessary cost where unnecessary cost is that which does not provide use, life, quality, appearance or customer features.

The principal benefit of Value Management is the reduction of cost while obtaining the best value for money.

The maximum cost reduction potential through VM to a construction project occurs early in the briefing/design process.

VM is a team approach to the identification of design and construction solutions which offer the best value for money with regard to the functional requirements of a client.

It is a common criticism of value management that it is no more than a cost reduction/cost of substitution exercise, i.e. acceptance of the technical solution given and attempting to reduce the cost of this solution. Quantity surveying practice is generally concerned with this approach. Value management on the other hand searches for alternative acceptable technical solutions, evaluates these and presents them as assessed options.

In other words VM is a problem-solving approach offering customers focused value learning, alignment and realisation. The intention of VM, to implement value-added solutions, is an iterative, non-linear (complex), multidisciplinary approach centred on:

- Creating a structure which permits understanding of the context and intentions of various players.
- Identifying and analysing core and other aspects which are of value to the customer using techniques including functional analysis.
- Brainstorming possibilities of alternative ways of achieving the customer-identified high value items.
- Interpreting (e.g. Life cycle cost, schedule) the possibilities to distil high quality ideas.
- Developing a structure appropriate to the implementation of value added solutions.

Cost analysis and Cost planning process.

The conventional QS process of cost analysis, cost planning and cost controlling is designed to achieve a balanced expenditure and to control the design development so that the client’s financial commitments are met.

A cost analysis is a systematic breakdown of cost data to facilitate examination.
The method used for building work is generally as follows:

- Analyse the cost of the project in items of functional elements such as foundations, structure, external walls, services, finishes, roof, etc.
- Break down the total cost of each element and express it as a cost per square meter of Gross Internal floor Area (GIFA).

The cost analysis provides the cost relationship between different sections of a building and allows one building to be compared with another. Analysis is normally used to help in the preparation of cost plans for future buildings.

Cost planning is a method of providing cost data which will assist the designer in making design decisions. The system will provide the information in a form which is easily understood by all the design team and also the Client.

The Cost planning process will achieve a balanced design solution, cover the client’s expectations with requirements and be carried out throughout the whole design period.

In the cost planning process the following are the main sections:

- To set realistic cost limits
- To decide how this money is to be spent
- To check that the money is being spent as intended.

The cost planning process includes the following functions, from the project inception to the tender analysis. (Post-contract cost control systems are excluded due to the comparison is this the right word between VM vs. Cost planning.)

<table>
<thead>
<tr>
<th>Value Management</th>
<th>Cost Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work shop</td>
<td>RIBA plan of work</td>
</tr>
<tr>
<td>The Job Plan</td>
<td>Allocation historical cost data</td>
</tr>
<tr>
<td>Selection of high cost areas</td>
<td>Consideration of alternatives</td>
</tr>
<tr>
<td>Generation of alternatives</td>
<td>Iterative and ongoing process</td>
</tr>
<tr>
<td>35% design stage</td>
<td>Multi-disciplinary approach</td>
</tr>
<tr>
<td>External multi-disciplinary team</td>
<td>Cost monitoring</td>
</tr>
</tbody>
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A comparison between VM and Conventional QS process of cost analysis and cost planning

In view of the above details and the summary of the comparison between VM and the Conventional QS process of cost analysis and cost planning, it should be
noted that the VM process is to identify and eliminate the unnecessary cost.

In other words, VM is basically a cost reduction exercise without affecting the client’s requirement or losing architectural features. Also it mainly involves eliminating unnecessary cost to the project.

The principle benefit of Value Management is the reduction of the cost while obtaining the best value for money.

The conventional QS process of cost analysis and cost planning is that procedures are set out to provide cost advice to designers as well as clients while keeping track of the cost without affecting the overall approved project cost plan.

The relationship between value management and value engineering

Value Management:
A structured process of dialogue and debate among a team of designers and decision-makers during an intense short-term conference. The primary objective of value management is to develop a common understanding of the design problems, identify explicitly the design objectives and synthesise a group consensus about the comparative merits of alternative courses of action. Value management makes no pretence of finding optimal answers; it is solely concerned with establishing a common decision framework around which participants can think and communicate.

In other words Value management is a proactive, creative, problem-solving or problem-seeking service which maximises the functional value of a project by managing its development from concept to use.

In other words, value engineering is a disciplined procedure directed towards the achievement of necessary function for minimum cost without detriment to quality, reliability, performance or delivery.

In view of the above facts, it should be noted that the relationship between VM and VE, that value engineering is a part of the value management process.

The advantages and disadvantages of the use of value management techniques for a development.

Advantages:
• Proof that the initial design was indeed the best
• Proof to the owner that he was receiving good value for money.
• Introduction of higher quality products.
• Best up-to-date technology at least cost.
• A clear focus on project objectives
• An alternative view of the design.
• Improved site management structures.
• An opportunity for a detailed analysis of the required project.

Disadvantages:
• More time required for the design than normal. However, this could be allowed for in the programme.
• Work interruption can be more costly than potential savings if the changes are made during the construction.
• Introduction of a second design team (Value Management Team) may cause conflicts between original design team and the VM team.

The methodology conventionally used to implement value management and the problems which may arise.

Value Management Workshop Process

VM studies are performed in three distinct parts: 1) pre-workshop preparation 2) workshop study and 3) post-workshop implementation.
The task-flow activities are as follows:

Pre-workshop

- Project Coordination:
  Team members, schedule, agenda
- Data Preparation:
  Facility criteria, drawings, budget
- Modeling:
  Quality program (space), cost, energy, risk

Workshop

- Information Phase:
  Secure facts, determine cost, fix costs on specific criteria and requirements
- Function Phase:
  verb/noun definitions of function, evaluate relationships
  (FAST diagramming) and cost these functions.
- Creativity Phase:
  Establish positive thinking, develop creative ideas in a team setting.
- Evaluation Phase:
  Refine and combine ideas, establish costs on all ideas, develop functional alternatives and evaluate by comparison.
- Recommendation Phase:
  Present proposals that resolve the study issues and motivate to action.

Post–Workshop

- Study Report
- VM Proposal Acceptance Meeting
- Implementation of Proposals
- Project Follow-up

Pre-Workshop

The success of the VM study is largely dependent on proper preparation and coordination. Information and documents are furnished by the designer and owner and are distributed to the team to prepare them for their area of study. All participants are briefed on their role and responsibility during the study. The pre-study effort includes the following activities:

- Identification of constraints to the VM study
- Review of project documentation and distribution of information to team members, finalization of team and team assignments.
- Preparation of other models, as appropriate (energy, time, distance, risk, etc.)
- Finalization of arrangements for workshop and location

The VE team relies on the project manager, design team, construction manager and the owner for the completeness and organization of the material to be furnished. The following data is normally provided for study:

- Community Impact Statement
- Facility Program and Objectives (Basis of Design)
- Design Standards & Criteria
- Master Site Plan (including Site Analysis)
- Design Calculations (as appropriate)
- Soil Borings
- Design Drawings and Specifications
- Estimate of Construction Cost (including back-up)
- Architectural and Engineering Concepts Description

Quality Model

The narrative expression of the quality model are the “Owner expectations” of the project. The model identifies key issues to be addressed by the project design regarding operation effectiveness, engineering performance, site and building image /aesthetics, schedule, cost, Operation and Maintenance flexibility, employee comfort, safety, environment, etc.. The VM team uses this model to help identify qualities of the present design in need of value improvement.

Program (Space) Model

A program model is prepared for the project to identify the functions of major spaces within the building. The programmed area is compared against the actual space allocated at this point in the design. The VM team uses this model to focus their attention on selected spaces which differ (higher or lower) from the program.

Cost Model

Cost information used during the study is normally prepared by the quantity surveyor prior to the study. A cost model is then prepared from this information. The cost model distributes costs by function and is used by the VE team to help identify areas of potential savings, when compared to similar facility value standards.
Economic Factors

During the value study, construction cost and life cycle cost summaries are prepared for each element of the project. Economic data and assumptions, used for the life cycle cost comparisons, are provided by the owner. The following is an example of this data:

Discount Rate 10% (compounded annually)
Analysis Period 20 years
Present Time Midpoint of construction
Equivalent Approach Present worth method
Inflation Approach Constant Sterling Pounds

Differential Escalation Rates
- Electrical Energy 0%
- Natural Gas 0%
- Other 0%

Present worth Annuity (PWA) Factors
- Electricity 8.514
- Natural Gas 8.514
- Other 8.514

Single Amount Present Worth (PW) Factors
- Year 10 0.614
- Year 12 0.557
- Year 15 0.481
- Year 20 0.377

Information Phase

At the beginning of the workshop, it is important to understand the background and decisions that have influenced the development of the design. For this reason, the designer normally orally presents the design to the VM team. The site, building layout and architectural, structural, mechanical and electrical systems are discussed.

The information phase also includes further refinement of the quality. Program and cost models are prepared before the workshop session. These models are updated based on information received during the designer's initial presentation. These models also form the basis of the VM team function analysis, which follows.

Function Phase

The required functions of the project are the controlling elements in the overall value approach. This procedure is beneficial to the VM team because it forces the participants to think in terms of function and cost associated with that function.

In order that the team might better understand the overall function of the project, a 'Function Analysis Systems Technique' (FAST) diagram is prepared. Reading from left to right, it is used to help explain how the designer chose to solve the functions. The FAST diagram, when read from right to left, also helps answer why these functions are important to the owner.

Preparing the function analysis of high cost systems also helps to generate many of the ideas that eventually result in recommendations. This forces the team to speculate on alternative solutions to the proposed design.

Creativity Phase

This step in the workshop involves the listing of creative ideas. During this time, the team thinks of as many ways as possible to provide the necessary functions within the project at a lesser cost to the Owner.

During this creative section, judgment of the idea is not permitted. The VM team is looking for quantity and association of ideas which will be screened in the next phase of the study. Many of the ideas brought forth in the creative phase are a result of work done in the function analysis. This list may include ideas that can be further evaluated and used in the design.

Workshop

During the actual workshop portion of the project study, a five step approach is followed. This methodology is an organized approach for searching out high cost areas in the design and developing alternate solutions for consideration. The workshop session uses a multi-disciplinary team following an agenda which details the five step methodology to arrive ultimately at recommendations for implementation.

The workshop follows five key steps
- Information Phase
- Function Phase
- Creative Phase
- Evaluation Phase
- Recommendation Phase
Evaluation Phase
In this phase of the project, the VM team judges the ideas resulting from the creative session. The advantages and disadvantages of each idea are discussed. Ideas are ranked based on savings potential, redesign time and Client acceptability. Ideas found to be not worthy of additional study are ranked low and those ideas that represent the greatest potential are ranked high, and then developed further. A weighted evaluation is applied in some cases to account for impacts other than costs. Ideally, the team would like to develop all ideas, but time constraints usually limit the number that can be prepared. The ideas ranked highest by the team are selected for further review with members of the design team for their input.

During the evaluation phase many of the ideas are expanded into workable solutions. This development consists of the recommended design, estimated initial and life cycle cost comparisons and a descriptive evaluation of the advantages and disadvantages of the proposed recommendations. It is important that the VM team convey the concept of their recommendation to the original design team. Therefore, each recommendation is prepared with a brief narrative to compare the original design method to the proposed changes. Sketches and design calculations, where appropriate, are also prepared in this part of the study.

Recommendation Phase
The last phase of the workshop is the presentation of the recommendations. The recommendations are further screened by the VM team before final presentation. An oral presentation of results is made on the last day of the workshop to the owner and original design team. A draft report of recommendations is also submitted at this time. The recommendations, the rationale that went into the development of each proposal and a summary of the cost savings are presented so that the design team and owner can initiate and evaluate the VM recommendations prior to the receipt of the formal VM report.

Post–Workshop
The post–workshop portion of the VM study includes preparation and submittal to the owner and the design team. The VM report incorporates the recommendations developed in the workshop. The design team responds by either incorporating the recommendations into the design or presenting reasons for rejecting them. A summary of the cost is normally also included in the designer’s response report which, together with the VM report, is submitted to the Owner for review. These two combined reports form the final VM report.

This post–workshop effort also requires continued project follow–up to resolve any questions remaining with the VM proposals. Either the VM team or the appropriate VM team member responsible for the proposal in question works directly with the design team to finalize implementation.

The above is the methodology conventionally used to implement the value management process to the project and the problems which may arise are as follows:

• Due to the value management process, additional time is required for the project designing process.
• Additional fees for the value management team might not be allocated in the original cost plan. However, these fees could be absorbed from the eliminated cost saving to be found from the VM process.
• Arguments, disagreement during the VM workshop.
• Personal differences and value judgements problems
Determination By The Engineer Under The ICTAD/SBD/02 Form of Contract

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1.0 Preamble

ICTAD/SBD/02 2nd Edition with the amendments dated 5th October 2009 is used as the Standard Form of Contract in Sri Lanka for works of over Rs. 100 Million and Works of lesser Value which are of complex nature. For the public sector contracts, use of this document is mandatory while in the private sector it is seldom used. Most of the clauses in the ICTAD form are similar and virtually identical to those in the FIDIC 1999 Form of Contract.

In the ICTAD/SBD/02 form there are many clauses under which the Parties (the Employer and the Contractor) are given the opportunity to seek redress for matters related to issues/problems arising from the execution of the Works and the Contractor and asking for agreement or determination by the Engineer in accordance with Sub Clause 3.4 (Determination). Claims made by a Party arising out of any default by the other Party or Force Majeure are subject to Clause 2.4 (Employer’s Claim) and Sub Clause 19.1 (Contractor’s Claim).

Sub Clause 3.4 and Sub Clause 2.4 are mutually explanatory of one another and so are the Sub Clause 3.4 and Sub Clause 19.1

The purpose of this article is to discuss such clauses and their salient points in detail.

This is not an easy task because of the wide range of activities involved under different circumstances.

Giving some words, sentences and paragraphs in Italics in this article is for the convenience of the reader, to help identify them with the relevant clauses and terms in the Conditions of Contract.

2.0 Sub Clause 3.4 - Determination

Whenever these Conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.4 to agree or determine any matter, the Engineer shall consult with each Party in an endeavor to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

The Engineer shall give notice to both Parties of each agreement or determination, with supporting particulars. Each Party shall give effect to each agreement or determination unless and until revised under Clause 19.0 (Claims, Disputes and Arbitration).

The Contract provides for the Engineer to proceed under the above Sub Clause with respect to matters which will give rise to the Parties making a claim on time, cost and any other matters which are subject to the Engineer’s agreement or determination, as stipulated in different clauses in the Conditions of Contract.

According to this Sub Clause, the Engineer shall consult with each Party in an endeavor to reach an agreement whenever the conditions state that the Engineer should proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine any matter.

Many of the clauses where the “Determination by the Engineer” is referred to include the phrase “After receiving this further notice the Engineer shall proceed with Sub Clause 3.4 (Determination) to agree or determine on these matters.” This gives the Engineer two options for resolving the issue/problem. The first option would be to make an agreement with the Parties through negotiations and the second option would be to make a decision of his
own. In the best interest of the Contract, the Engineer can first try to make an agreement through negotiation rather than making a decision of his own.

However, in acting under this sub clause, it is more practical if the Engineer can do his evaluation of the claim independently taking due regard of all relevant circumstances that have provided the opportunity for the Party to make a claim and follow up with the consultation of the Parties separately. During the consultation if there is anything that the Engineer has not taken into consideration in his independent evaluation, necessary adjustments can be made to the determination, provided they are relevant and justified. Then, the Parties can be formally informed of the final determination. If no agreement could be reached on the adjusted determination, the Engineer can treat his final determination as the fair determination and inform the Parties to give effect to his determination or else the Party who is not agreeable to the Engineer’s final determination can refer the matter for adjudication under clause 19.2

Sub Clause 3.5 (Engineer’s Impartiality) has a bearing on the Engineer’s determination under Sub Clause 3.4. The Impartiality of the Engineer in exercising his discretion has been emphasized in Sub Clause 3.5. The Engineer is empowered to use his discretion when:
(a) giving his decision, opinion or consent
(b) expressing his satisfaction or approval
(c) determining value or
(d) otherwise taking action which may affect the rights and obligations of the Employer.

Accordingly, the impartiality required by Sub Clause 3.5 must be met by the Engineer when he acts under Sub Clause 3.4.

However, whether or not the Engineer’s determination on the value is impartial, according to Sub Clause 3.5, it may be opened up, reviewed or revised as provided in Clause 19.0 (Claims, Disputes and Arbitration)

Sub Clause 3.2 (Delegation by the Engineer) does not allow the Engineer to delegate to his assistants the authority to determine any matter related to Sub Clause 3.4 (Determination) unless otherwise agreed upon by both Parties. The writer is of the opinion that any matter, particularly one related to the cost and time, should be handled by the Engineer only as both cost and time items are sensitive issues as far as the Employer and the Contractor are concerned even though the Engineer can reverse or vary the determination or instructions of his assistants under Sub Paragraph 2.(b) of Sub Clause 3.2.

3.0 Sub Clause 2.4 – Employer’s Claim

According to the 1st paragraph of Sub Clause 2.4 the Engineer can also make claims on behalf of the Employer.

It is a condition that the notice shall be given as soon as practicable after the Employer become aware of the event or circumstances giving rise to a claim. Accordingly, in the first instance, Employer should be aware of the event that has caused losses or damages to him. Then he should either make his claim or advise the Engineer to make a claim on his behalf in accordance with Sub Clause 2.4 (Employer’s Claim) or advise the Engineer to make the claim.

If the Engineer has made a Claim on behalf of the Employer and sent it to the Contractor, he has to argue his own case with the Contractor when it comes to agreement or determination under Sub Clause 3.4. If the Contractor disagrees the Engineer will have to make a fair determination.

This is somewhat peculiar as the same Party that has made a claim against another party, is trying to make a decision on the same claim that he has prepared. Therefore the Contractor may sometimes take the position that the Engineer’s role is not impartial, despite the Engineer’s claims to be fair and reasonable.

4.0 Sub Clause 19.1– Contractor’s Claim

This Sub Clause allows the Contractor to make his claims if he considers that he is entitled to any Extension of Time and/or any additional payment under any clause in the Conditions of Contract or otherwise in connection with the Contract. There are specific clauses in the Conditions of Contract under which the Contractor can make claims for reasons specified in those clauses. Apart from this the Contractor is allowed to make his claims for reasons outside these clauses provided such reasons have connections with the Contract. Such connections must be bona-fide and able to be proved beyond doubt.
After the 1st Notice of Claim is given to the Engineer by the Contractor under this sub clause describing the event that gives rise to a claim, further notices together with supporting details and information will also have to be sent to the Engineer from time to time until such time as the Engineer is able to proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine the Contractor’s entitlement.

The Contractor should make reference to the sub clause or the connection to the sub clause or the connection to the Contract under which he intends to submit his claim in his 1st notice to the Engineer.

5.0 Clauses Under Which The Engineer is Empowered to Make His Determination

There are many clauses in the Conditions of Contract under which the Engineer has been given the authority to determine in accordance with Sub Clause 3.4 on the issues/claims raised by the Parties. These include the Clauses which are subject to Sub Clause 2.4 (Employer’s Claim) and Sub Clause 19.1 (Contractor’s Claim).

Most of the issues originate from failures on the part of a Party to comply with its individual obligation stipulated in the Contract. Sometimes, they originate from failure on the part of the Engineer. Force Majeure and other reasons beyond anyone’s control will also give rise to problems and claims. In such instances the Party affected by such an issue or the Party that has to face the problem can seek redress under these clauses in the Conditions of Contract.

When the Engineer receives a claim from the Contractor asking for Extension of Time and or Cost, it is his responsibility to examine such a claim and give his determination. In the process of the Contractor’s Claim, the Engineer should ensure that the time limits given in Sub Clause 19.1 (Contractor’s Claim) are adhered to. It should be noted that there are no time limits stipulated in Sub Clause 2.4 (Employer’s Claim).

The line of action of the Engineer and procedure to be followed in such determination may differ from case to case and clause to clause.

5.1 Claims Subject to Sub Clause 2.4 (Employer’s Claim)

5.1.1 Sub Clause 4.11 – Unforeseeable Physical Conditions

The Engineer and the Contractor should note the meaning of “Physical Conditions” given in this Sub Clause.

If the Engineer finds the physical conditions of the Site more favorable than could reasonably have been foreseen at the time of tender, the Engineer shall proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine the amount of reduction to be included in the Contract Price and payment certificate.

Mode of the Employer’s entitlement under this clause is the Reduction in the Contract Price.

5.1.2 Sub Clause 7.4 – Rejection

Under this sub clause, the Employer is entitled to make claims when he incurs additional cost due to the Contractor’s failure to conform to the specifications and standards specified in the Contract with respect to Plant, Materials and Workmanship to be incorporated into the Permanent Works. This can happen if the Employer is to spend his effort, money and resources on corrective action or rectification Works and the testing of such defective items. Sometimes, the Employer may require retesting done by an independent testing organization as he may not be satisfied with the work of the Contractor’s testing organization.

The mode of the Employer’s entitlement under this clause is Cost.

5.1.3 Sub Clause 7.5 – Remedial Work

In the event of the Contractor’s failure to adhere to the Engineer’s instruction issued with respect to items (a), (b) and (c) described in this sub clause, the Employer is required to appoint another party to carry out the remedial works and make payments directly.
It should be noted that the remedial works under this clause shall also include any urgent work which is necessary for the safety of the Works.

The Engineer has to agree or determine the cost of remedial works carried out by the third party in accordance with Sub Clause 3.4 (Determination) and make recommendations to the Employer to recover such payments from the Contractor.

The mode of the Employer’s entitlement under this Clause is **Cost**.

### 5.1.4 Sub Clause 8.6 – Rate of Progress

When the rate of progress of the Works is behind the programme due to reasons other than those counted for Extension of Time under Sub Clause 8.4 (Extension of Time of Completion), the Engineer can instruct the Contractor to submit a revised programme in such manner that the Works could be completed within the originally agreed Time for Completion together with new methodology (to catch up the delay).

Unless the Engineer notifies otherwise, the Contractor shall proceed with the Works as per the revised programme and the new methodology. Sometimes there will be issues arising from the implementation of these new methods and as a result the Employer may incur additional cost. Eg: If the contract provides for water and power being supplied to the Contractor free of charge, the Employer will incur additional cost on the use/consumption of these facilities by the Contractor for the Works under the new methodology and this is a cost which the Employer has not originally envisaged. Therefore this additional cost will be agreed or determined by the Engineer in accordance with Sub Clause 3.4 (Determination).

The mode of the Employer’s entitlement under this Clause is **Cost**.

### 5.1.5 Sub Clause 8.7 – Liquidated Damages

If the Contractor fails to comply with Sub Clause 8.2 (Time for Completion), the Contractor shall subject to Sub Clause 2.4 (Employer’s Claims) pay liquidated damages to the Employer for his default.

The Liquidated damage is a predetermined sum included in the Contract, as a payment to be made to the Employer by the Contractor in the event of the latter’s failure to complete the Works within the Time for Completion stipulated in the Contract.

Therefore a question of further determination by the Engineer on the same matter does not arise except in the case of the Engineer’s determination under Sub Clause 8.4 (Extension of Time for Completion) and in the calculation of proportional amounts of Liquidated damages for the Works taken over in part or parts under Sub Clause 10.2 (Taking Over of Part of the Works)

The mode of the Employer’s entitlement under this Clause is **Liquidated Damage**.

### 5.1.6 Sub Clause 9.4 – Failure To Pass Tests on Completion

Even if the testing required to be done under Sub Clause 9.3 (Retesting) is failed, at the request of the Employer, the Engineer can issue a Taking Over Certificate (sub paragraph (C) of this Sub Clause). As a result there will be reduced value to the Employer. Unless the amount of this reduction or its method of calculation is otherwise stated in the Contract the Employer needs both Parties to agree on this reduction and the amount is paid prior to issue of the Taking Over Certificate or determined and paid in accordance with Sub Clause 3.4 (Determination).

If the Parties are unable to agree on the reduction or its method of calculation, the Engineer has to get involved and make his determination under Sub Clause 3.4 (Determination)

The mode of the Employer’s entitlement under this Clause is **Reduction in the Contract Price**.

### 5.1.7 Sub Clause 11.3 – Extension of Defects Notifications Period

After the Taking Over, if the Works or a part of the Works cannot be used by the Employer for the intended purpose due to a defect or damage, the
Employer shall be entitled to an extension of the Defects Notification Period for the Works or that part of the Works.

If the Employer considers that he is entitled to an extension as a result of the above, he will give a notice to the Contractor with a copy to the Engineer. Then the Engineer will proceed in accordance with Sub Clause 3.4 (Determination) to agree or make his determination on the extension to be granted to the Employer by the Contractor.

The mode of the Employer’s entitlement under this Clause is **Time**.

5.1.8. **Sub Clause 11.4 – Failure to Remedy Defects**

Due to the Contractor’s failure to rectify any defect or damage within a reasonable time, a date may be fixed by the Employer or the Engineer for the Contractor to finish the rectification works. If the Contractor fails to complete such rectification works even by this new date the Employer will have to select one of the options available to him under this Sub Clause as a remedy to the Contractor’s default.

Under the 1st option [11.4(a)], the Employer has to carry out the rectification himself or employ a third party and get the rectification work done in which event the Employer will make a claim. Then the Engineer will proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine the cost that would have been reasonably incurred by the Employer in getting the rectification work done by himself or a third party.

In the second option [11.4(b)], the Engineer is required to agree or determine a reasonable reduction from the Contract Price in accordance with Sub Clause 3.4. (Determination)

Under the 3rd Option [11.4(c)], the Employer can terminate the Contract if he is unable to have full use of the entire Works or a part of Works and the amount of money paid by the Employer to the Contractor for the works not used can be recovered in full including the financial cost, dismantling and clearing cost, subject to plant and materials returned from that part of the Works being returned to the Contractor. There is no obligation on the part of the Engineer specified in this Clause for the determination of the amount of money to be recovered from the Contractor. However it is an implied obligation of the Engineer.

The mode of the Employer’s entitlement under this Clause is **Cost or Reduction in the Contract Price**.

5.1.9. **Sub Clause 15.4(a) – Payment after Termination**

If the Employer or the Engineer on his behalf considers the Employer to be entitled to any payment he may proceed under this Sub Clause. The Engineer shall then proceed to agree or determine the amount the Employer is entitled to be paid by the Contractor.

The mode of the Employer’s entitlement under this Clause is **Cost**.

5.2 Claims Subject to **Sub Clause 19.1 (Contractor’s Claim)**

5.2.1 Sub Clause 1.9 (Delayed Drawings or Instructions)

According to Sub Clause 1.8:

- Drawings are in the custody of the Employer.
- Drawings shall be supplied to the Contractor.

The person who should issue the drawings to the Contractor has not been stated in this Sub Clause.

According to SubClause 1.9

- The Contractor should give notice to the Engineer whenever the Works are likely to be delayed if necessary drawings or instructions are not issued.
- Notice should include the details of drawings required and when they are to be issued and delay if any.
- The Contractor shall give further notice of his entitlement for Extension of Time, Cost and reasonable Profit if the Engineer has failed to supply the requested drawings in time.

Even though Sub- Clause 1.8 is not very clear about who should issue the drawings and when it should be done, Sub Clause 1.9 implies that the Engineer should issue the drawings within a reasonable time.
If the Contractor has made a request to the Engineer asking him to issue the drawings and if the Engineer has failed to do so, the Contractor has to give further notice of his claim for Extension of Time and cost for the determination by the Engineer in accordance with the Sub Clause 3.4.

The mode of the Contractor’s entitlement under this Clause is **Time, Cost and Reasonable Profit**.

**5.2.2 Sub Clause 2.1 – Right of Access to the Site**

Under this Sub Clause the Employer is responsible for giving Right of Access and the Possession of the Site to the Contractor on the receipt of the Performance Security. Therefore the Engineer should ensure that the Performance Security is submitted to the Employer by the Contractor in correct order within the specified period in terms of Sub Clause 4.2 (Performance Security). The Engineer should also ensure the site being given to the Contractor for his exclusive use and if not, there should be an agreement and arrangement between the Parties as to when the remaining part of the Site is released for the Contractor’s use and how the works will be executed in that part of the Site.

If the Contractor has suffered a delay in receiving these rights and has given the required notice and submitted his claim, the Engineer should proceed to agree or determine the delay and/or cost that should be allowed to the Contractor in accordance with Sub Clause 3.4 (Determination). Such determination is only possible if the Employer’s failure to give the required rights to the Contractor is not due to a fault of the Contractor.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit**.

**5.2.3 Sub Clause 4.7 – Setting Out**

Under this Sub Clause, the Contractor is required to set out the works in relation to original Points, Lines and Levels of reference specified in the Contract or notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works and shall rectify any errors.

The Employer shall be responsible for errors in the information and data given in the Contract or those notified by the Engineer. If the Contractor suffers delay and/or incurs cost due to these errors, he shall give notice to the Engineer and be entitled to extension of time and the payment of connected cost plus reasonable profit.

Once the Contractor’s notice is received and before proceeding in accordance with Sub Clause 3.4 (Determination), the Engineer should decide whether the Contractor as an experienced contractor would have been able to discover such errors beforehand to avoid possible delay and additional cost.

Further the Engineer should be satisfied that the Contractor has made his best effort to verify the accuracy of the data and information given.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit**.

**5.2.4 Sub Clause 4.11 – Unforeseeable Physical Conditions**

The Engineer and the Contractor should note the meaning of “Physical Conditions” given in this Sub Clause.

The Contractor should give the notice to the Engineer immediately after if he encounters adverse physical conditions which are considered to have been unforeseeable.

After receipt of the Contractor notice of unforeseeable Physical Conditions and the further notice of the Claim for the cost and time, the Engineer should inspect the physical conditions. Having done this and being satisfied with the accuracy of information provided by the Contractor to establish the fact that such physical conditions are unforeseeable to an extent which can cause problems and delays in the execution of the Works, the Engineer shall proceed to agree or determine quantum of delay and cost in accordance with the Sub Clause 3.4.

The modes of the Contractor’s entitlement under this Clause are **Time and Cost**.
5.2.5 Sub Clause 4.16 – Fossils

Under this Sub Clause, the Contractor is required to give prompt notice to the Engineer upon discovery of items such as fossils, coins and items of geological and archeological interest.

The Engineer should issue instructions to the Contractor regarding the action and procedure to follow in respect of these items. If the Contractor suffers delay and/or incurs cost as a result of the compliance with the Engineer’s instructions he shall give notice to the Engineer and inform him about his entitlements on Extension of Time and the cost. Once the Contractor’s notice is received and before proceeding in accordance with Sub Clause 3.4 (Determination), the Engineer should decide whether the Contractor has taken reasonable precautions to avoid possible damage to these items and then shall agree or determine the Contractor’s entitlements.

The modes of the Contractor’s entitlement under this Clause are **Time and Cost**.

5.2.6 Sub Clause 7.3 – Testing

The party responsible for delay under this Sub Clause is not the Employer, as mentioned in paragraph 5 of this Sub Clause, but the Engineer.

Delay experienced under this Sub Clause has been caused by the Engineer’s failure to attend testing in time. (Paragraph 4)

However, if the Contractor suffers delay and additional cost, as a result of the Engineer’s failure to attend in time for the tests, the Contractor shall give a notice to the Engineer of his claim. Soon after the receipt of the Contractor’s Claim, it shall be evaluated by the Engineer to agree and determine in accordance with Sub Clause 3.4 on the Contractor’s entitlements.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit**.

5.2.7 Sub Clause 8.9 – Consequences of Suspension

As a result of suspension of Works by the Engineer in terms of clause 8.8 (Suspension of Works), the Contractor is entitled to give notice of claim for Extension of Time and the cost.

During the process under Sub Clause 3.4 (Determination) the Engineer has to exclude the time taken and cost incurred in the rectification of the Works disturbed due to the Contractor’s faulty design, workmanship and materials or his failure to comply with obligation with respect to the protection of suspended Works and consider only the remaining part of the Claim.

The modes of the Contractor’s entitlement under this Clause are **Time and Cost**.

5.2.8 Sub Clause 10.2 – Taking Over of Part of the Works

According to this Sub Clause:

1. The Employer cannot use any part of the Works other than as a Temporary measure which is either specified in the Contract or agreed by the Parties unless the Taking Over Certificate for that part of the Works is issued.

2. If the Employer wants to use any part of the Works before the Taking Over Certificate is issued he may do so subject to the conditions stipulated in this Sub Clause. (Sub paragraph (a) and (b).)

The Engineer can also issue a Taking Over certificate for that part of the Works if requested by the Contractor.

If the Employer wants to use a particular part of the Works, it has to be in line with the above. If the Contractor incurs cost due to deviation from the above the Contractor, may give notice to the Engineer and follow up with his claim. On the receipt of such claim the Engineer is to proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine cost, reasonable profit and the application of proportional reduction in the rate of liquidated damages.
It should be noted that the Employer can use his discretion and request the Engineer to arrange to take over any part of the Permanent Works.

The modes of the Contractor’s entitlement under this Clause are **Cost and Reasonable Profit.**

### 5.2.9 Sub Clause 10.3 – Interference with Tests on Completion

According to this Sub Clause:
- Due to an action by the Employer the Contractor may not be able to carry out Tests on Completion in accordance with Clause 9.0 for more than 14 days.
- Despite this, Employer shall be deemed to have taken over the Works or Section on the date when Test on Completion otherwise would have been completed and the Engineers shall then issue a Taking Over Certificate subject to the required Testing being done within 14 days of Engineer Notice.

As result of Delay in Testing, the Contractor can give notice of claim to the Engineer and follow up with his detailed claim.

On the receipt of Notices and the detailed claim from the Contractor, the Engineer should act in accordance with Sub Clause 3.4 (Determinations) to agree or determine the Contractor’s entitlements.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit.**

### 5.2.10 Sub Clause 11.7 – Contractor to Search

Sometime at the initiative of the Engineer, the Contractor is required to search for defects in the Works completed. If no defects are found, costs incurred by the Contractor in searching for defects including reasonable profit can be claimed by the Contractor and the Engineer will have to act in accordance with Sub Clause 3.4 (Determination) to agree or determine cost and reasonable profit that should be paid to the Contractor.

The modes of the Contractor’s entitlement under this Clause are **Cost and Reasonable Profit.**

### 5.2.11 Sub Clause 12.4 – Omission

If the Contractor suffers a loss due to an omission of any Work which forms a part of a variation, he needs to send the Engineer a notice with the details of the omission. Then the Engineer will proceed with Sub Clause 3.4 (Determination) to agree or determine the cost which shall be included in the Contract Price.

The mode of the Contractor’s entitlement under this Clause is **Cost.**

### 5.2.12 Sub Clause 16.1– Contractor’s Entitlement To Suspend Work

If the Work is suspended or Progress of Work is slowed down by the Contractor due to non-certification by the Engineer or nonpayment by the Employer and as a result, if the Contractor suffers delay and/or incurs cost, he will give notice to the Engineer of his claim.

On the receipt of the required notices and detailed claim from the Contractor, the Engineer shall proceed with the Sub Clause 3.4 (Determination) to agree or determine on the extension of time and related cost including a reasonable profit.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit.**

### 5.2.13 Sub Clause 17.4 – Consequence of Employer’s Risks

If the Contractor suffers delay and/or incurs cost from rectification of damages/losses caused by any one of the Employer’s Risk mentioned in Sub Clause 17.3, and a notice has been given to the Engineer to that effect, the Contractor can give his notice of claim for the delay and the cost.

The Engineer on the receipt of the claim shall proceed in accordance with Sub Clause 3.4 (Determination) to agree or determine the Contractor’s entitlements on the Extension of Time and the Cost.

The modes of the Contractor’s entitlement under this Clause are **Time, Cost and Reasonable Profit.**
5.2.14 Sub Clause 20.4 – Consequence of Force Majeure

It is a requirement in the Conditions of Contract that there should be a notice of Force Majeure sent by the Contractor to the Engineer in accordance with Sub Clause 20.2 (Notice of Force Majeure) prior to the submission of a claim under this Sub Clause.

Once the detailed claim is submitted to the Engineer by the Contractor the Engineer shall proceed in accordance with Sub Clause 3.4 (Determinations) to agree or determine on the Contractor’s entitlement for the time and the cost.

The modes of the Contractor’s entitlement under this Clause are Time and Cost.

5.3 Determinations under Sub Clause 3.4 with respect to purposes other than the Cost and time entitlements.

5.3.1 Sub Clause 12.3 – Evaluation

This determination by the Engineer under this Sub Clause is different from the determination that has to be made by the Engineer under other Clauses in the Conditions of Contract.

Most of other determinations are related to cost and time arising out of default by the parties.

Under this Sub Clause the determination that has to be made by the Engineer is related to the Works, their Measurements, Method of Measurement rates and Evaluation for the purpose of determination of the Contract Price.

5.3.2 Sub Clause 13.2 – Value Engineering

Determination by the Engineer under this Sub Clause is also different from the determination by the Engineer under other Sub Clauses.

If the Contractor is able to produce a Value Engineering Proposal for a part of the Works which makes changes to the design part of it and reduces its money value included in the Contract Price and if the proposal is accepted and approved by the Engineer, a fee will have to be agreed or determined by the Engineer in accordance with Sub Clause 3.4 (Determinations) using the amounts worked out in sub paragraphs C (i) and C (ii) of this Sub Clause.

5.3.3 Sub Clause 15.3 – Valuation and Date of Termination

Determination by the Engineer under this is also different from the determination by the Engineer under other Sub Clauses. There is no requirement as to a notice being sent to the other party other than the notice of termination. Then the Engineer has to take initiative and proceed with Sub Clause 3.4 (Determination) to agree or determine the Value of Works, Goods etc any other dues to the Contractor for the Works executed in accordance with the Contract. This may include the Contractor’s Claims under Sub Clause 19.1 and the Employer’s Claims under Sub Clause 2.4 both of which have been processed, agreed or determined.

6.0 It is observed that the majority of the Determinations under Sub Clause 3.4 are for entitlements on the extension of time (for Contractor), cost (for both Employer and the Contractor) or Reasonable Profit on the cost (for Contractor).
Design and Build Contracts

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Introduction
With the construction sector growth taking place in country, the quality and the quantity of construction projects are having higher demands in the property sector. It has integrated the different kind of procurement systems to source main contractors, sub-contractors and even long lead suppliers. Therefore, the most useful protection that can be offered to a client for his value for money is a reasonable policy for selecting a procurement strategy for their development.

The procurement strategy is usually focused on the need for the project as a basic element or as an investment. When considering the above there are procurement criteria in relation to project type or importance to each particular client. Mainly, the above criteria includes, building functions and performance, time, cost, quality, accountability, sustainability, flexibility, risk, value for money, etc.

The procurement strategy applied for the purpose of project procurement in conjunction with the client, designing and overall strategy must suit all of the needs and as many of the wants as possible and also identify the project characteristic.

Furthermore, the choice of procurement strategy must suit the project characteristics and how it is to be administered. The following three procedures would apply to procurement in many projects:
• Selecting the strategy
• Implementing the strategy
• Planning the administration of the contracts, necessary to implement the strategy.

Finally, the overall objective is to produce a successful project, and thus a satisfied client.

When considering the above procurement criteria and project characteristics for construction projects, it will lead to the selection of the most appropriate procurement path suited to the construction industry. There are a number of procurement approaches utilized in the construction sector. The following procurement approaches can be mainly taken into account:

The traditional procurement path
The traditional procurement path is the most commonly used method in the construction industry. In this method the design team, with an architect as the lead consultant, fully design the project and cost control consultant prepare the tender documents. In most of the project by using this approach, select the contractor. The selection of the contractor would be through the competitive tender and carries it out for an agreed lump sum fixed priced contract.

In the traditional procurement system, the person appointed has taken responsibility for two separate tasks: translating the employer's requirements into drawings, specifications and the like through the process of briefing and design along with administering the building contract.

This type of contract gives the contract administrator the power to change (as a variation) the work as required of the project. According to the RICS annual survey of construction contracts, the traditional path has been ranked as the most commonly used path in the world of construction sector.

The main advantages of the traditional approach are given below:
• Completion of design before tender to provide good time and cost control
• Participation of designer for the entire duration
of the construction process, which provides good quality control
• The approach is well set up and familiar to all – everyone recognizes how it works
• Extensive provision for client changes and well described procedures for the evaluation of variations

However, the traditional approach has the following disadvantages:
• Can be long-winded. The procedure is extremely sequential.
• During the design stages, there is less opportunity for the contractor to provide skills and suggestions regarding constructability and his expert skill in consecution.

The Figure 1, below illustrates the organizational arrangement of the Traditional method of procurement.

The features of design and build contracts would be suitable

The features of projects where design and build contracts would be appropriate can be considered under the following headings;
• The relative significance of the client’s main concern (time, cost, function, quality, value for money, etc.).
• When expertise knowledge of construction is required for the project.
• The single point responsibility and ease of communication.
• The requirement for an early start on site.

Design and Build

Features of design and build contracts
In this method, the employer directly identifies his requirements to one organization. With this type of contract, the organization is responsible for both the design and construction of the development.

Design and build contracts can choose a fixed price or a target price with a sharing mechanism for better cost efficiency. The above options have a certainty of cost and are also supported by the project team to create savings to the advantage of the client

Approaches to design and build contracts
Design and build is a reasonable and obvious system for procuring a wide range of buildings. As a procurement route it is a practical and valuable option to general contracting or construction management. While there is no real limit on the type or scale of project for which it can be used, it is not recommended for use in high-risk projects.
Generally, the following advantages of this type of contract can be taken into Account:

- Speed of construction
- Single point of responsibility i.e. the contractor is exclusively liable for failure and/or the success of the construction
- Specialisation and know-how of the contractor can be utilized for the project development.
- The client is aware of his total financial requirement from the commencement of the project
- Close inter-communication between the contractor’s design team and construction teams

Similarly, this method also has some disadvantages:

- The client has no idea whether he is achieving the best value for money unless he employs his own independent advisers, which adds to his costs.
- The quality control assurance procedures are mostly in the contractor’s hands

The Figure 2, below illustrates the organizational arrangement of this method of procurement.

**Management contract**

The management path normally contains a fee for the provision of management Expertise. In this method, normally there are two options are available, Management Contracting and Construction Management.

The important fact here is that the contractor is the main point of contract. In this method, the contractor is involved with the work package contractors. So, although the contractor gives an active contribution during the construction process and he is responsible for managing construction operations, the managing contractor would normally be expected to provide and maintain the entire site facilities (offices, storage, water, electricity, power, plant, equipment and attendance etc.)

The main advantages of management contracts are given below:

- When the work package has been designed, the work can start on site
- The contractor’s practical knowledge and management skills are available to help the design team

![Figure 2: Design & Build Procurement Route](image-url)
Overlapping of design and construction can considerably decrease the time requirements, ensuring an earlier return on the client’s investment. The contractor is part of the client’s team, and therefore able to recognize the client’s requirements.

However, the management contracting method also has the following disadvantages:
- Uncertainty regarding the final cost, until the final works package has been completed.
- There may be a cost increase due to design changes during the construction process and because works packages have been closed due to minimal design information.
- Due to the number of works contractors, coordination problems could have arisen, reducing the overall construction progress.

The following advantages of these contracts can be taken into consideration:
- Design processes are continuous, in line with construction works
- The construction process is more closely incorporated into the management of the project

**Construction Management**

Construction Management is similar to the management contracting process. The contractor will be responsible for the planning, management and co-ordination of the works on site and for arranging for it to be carried out in an efficient manner. With this form of management, the construction manager has no contractual liability as the individual trade and specialist contractors are in direct contracts with the employer and can be considered to be working in the best interests of the employer.

The construction manager is then responsible for the overall control of the design team including the cost manager and various trade contracts, during both the design and the construction processes of the project.

The Figure 3, below illustrates the organizational arrangement of the Management Contracting method of procurement.
• Close relationship between the construction management contractor and the designers

However, this method also has some disadvantages:
• The client’s financial commitment is uncertain until the final package has been executed
• The client has one consultant and a number of contractors with whom to deal instead of only one main contractor
• Due to the number of works contractors, it could create coordination problems and reduce overall construction progress

This path attempts to merge characteristics of the ‘design and build’ and ‘management’ paths. The contractual and management relationships as shown on Figure 4:

**Collaborative approach – Partnering**
The concept of collaborative procurement refers to where the employer and contractor work jointly to achieve mutually agreed-upon and complementary aims.

‘Partnering is a management approach used by two or more organizations to achieve specific business objectives by maximising the effectiveness of each participant’s resources. The approach is based on mutual objectives, an agreed method of problem resolution and an active search for continuous measurable improvements. Partnering can be based on a single project (project partnering) but greater benefits are available when it is based on a long-term commitment (strategic partnering or alliancing).’

![Figure 4: Construction Management Procurement Route](image-url)
Partnering should not be classed a procurement method for two reasons. Firstly, it is not strictly a procurement system at all. It is a philosophy which can be used in conjunction with most procurement systems. Secondly, the principle of ‘you scratch my back and I’ll scratch yours’ is not new. Two partners helping each other for mutual benefit, instead of each one trying to gain the most at the other’s expense, has to be the way forward for any civilised business environment. It should be regarded as the way forward for success in the construction industry.

The potential benefits of successful partnering to the client are given below:

• Better value for money
• At least the same level of quality
• Less confrontation and therefore speedier delivery
• Less risk, greater certainty of satisfaction
• Fewer claims
• Less bureaucracy
• Better communication, understanding and tolerance of problems
• Faster construction
• Continuous improvement

The benefits to the contractor are as follows:

• Increased profit potential
• Less confrontation
• Greater certainty of workload
• Better communications and understanding from clients
• Less bureaucracy
• More involvement in key decision-making
• Greater potential for profit
• No competitive tendering process, therefore reduced overheads
• Reliable flow of design information

In the construction industry the prime objective of a ‘partnering’ approach is to achieve completion of a project in which both parties are satisfied with the result – the so called ‘win-win’ scenario.

Discussion
The Government and private developers are the major Employers in the Industry. As the construction industry has continued its level of investment, the strain being positions on construction through conventional processes of procurement. However, when the procurement route is adopted by the contracting parties, it is necessary to bear in mind both the advantages and disadvantages of each approach so that informed decisions can be made prior to project commencement.

Formerly, most projects suffered from inadequate or inappropriate procurement decisions. The industry lacks a sensible and systematic strategy for selecting suitable procurement routes. However, the most helpful protection that can be offered to a client is a reasonable policy for selecting a procurement approach for each project.

However, it seems that the design and build procurement route has the possibility to achieve a win-win status in any project. The success factor is adequately strong, especially when the contractor and the employer are very clear in terms of function and liability of each other while making certain that the appointed consultant is appropriate for this design and build type of projects.

It is a recognized fact that developers look for minimum costs, tight schedules and zero impact on the post-bid budget. Some consider that the final option is choosing the design and build procurement method, not knowing that design and build does not always achieve the required integrated solution.
Abstract

Critically examination of contemporary thinking and theories on strategy and explaining how strategies within an organisation competing in the build environment sector, or a specific part of the sector, could draw upon such thinking and theories in shaping the practice or process of strategy development.

Introduction:

This essay is aimed at critically examining contemporary thinking and theories on strategy, and to describe how strategists within a building contracting company competing in the construction industry or a related field could utilize these theories to develop a successful strategy. Furthermore, it emphasizes on, what are the specific challenges faced by corporate based strategists to boost the company’s strength relative to the competition in the crucial areas, which are critical to accomplish success in the construction industry.

The strategic management processes include strategic analysis, strategic choices or options, and strategic implementation and response. Strategy is widely accepted as a significant tool for any business. Moreover, this essay seeks to synthesize the thinking of strategists and some of the tools, techniques and tactics that higher management or strategists may use to develop the strategic process. Construction business is a challenging and risky business. To effectively resolve the problems it has to face, it is imperative for the manager to think strategically about the organization’s position and future. The top level management should engage in strategic planning and implementation to reach the goals and objectives of their company if they are to successfully compete in the construction industry.

Scholarly Views on Strategy

A summary of different views of scholars regarding strategy are briefly presented below:

A. Chandler: The determination of the basic long term goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary to carry out the goals (Chandler, 1962). This can be termed as the classical perspective definition of strategy. Strategies are integrated decisions, actions or plans designed to set and achieve organisational goals. This is also known as the “linear view.”

B. Hofer & Schendel: Strategy represents the content and outcome of the strategy formulation process (Hofer & Schendel 1978). On looking into this theory it could be deduced that in the case of an organisation, strategy describes:
   I. The fundamental characteristics of the match of its inherent resources and skills, and what it achieves as a result of it within the framework of the organisation (internal environment).
   II. The opportunities and threats of the surroundings in which an organisation flourishes, that enables it to achieve its goals and objectives (external environment).

C. Van Cauwenbergh & Cool: Strategies are orienting metaphors or frames of references (Van Cauwenbergh & Cool 1982). It is also known as the interpretive view

D. Porter: Route to competitive advantage is strategy formed of unique insights into industry relationships (Porter 1985). Strategizing as a process can help create those insights and define the goals that
insights are exploited and orientated toward, so as to become valued innovations.

E. Mintzberg: Sees strategy as 5Ps– plans, ploys, patterns, position and perspective (Mintzberg 1991). His analysis suggests that five Ps are interrelated. He further calls it a pattern, that is, consistent in behaviour over time (Mintzberg 1994).

**Critical Analysis of Existing Theories**

*Theory Vs. Practice – bridging the gap*

Theorists in strategic studies have expressed the importance of an approach which is more pragmatic, readily applicable and accessible from the view point of practitioners. Strategic planners were severely criticized by Kiechel who accused them of wasting time developing impractical and unrealistic strategies “at the expense of common-sense management” (Kiechel, W., 1984). Braddick acknowledges the fact that both strategists as well as top managers exist and perform in extremely complicated situations leading “very fragmented lives” (Braddick, W.A.G., 1988) and unfortunately development programmes aimed at executives mostly tend to ignore this fact. Argyris (Argyris, C., 1989) indicates that organizations often generate and maintain inefficiency rather than seek to extirpate it, and strategic theory has been unsuccessful in helping practitioners in the field to identify the causes for same.

Whatever the latest advances in theory that support the contention that complexity and sophistication, most of all, are what most strategists need to assimilate and gain control of, apparently there is a substantial and needless hiatus between some of the important theoretical developments and the practical implementation of successful strategy. If strategy is described as the systematic study of organizational problems from the view point of the management, as suggested by many scholars, then it would appear that “more efforts need to be made in order that theoretical perspectives are put to practical use.” Bridging the gap between theory and practice necessitates what has yet been failed to accomplish, namely, the development of a mutually acceptable standard useful to both practitioners and theorists alike. However, complexity and variety which constitute the essential core of strategy are not readily overcome in the attempt to clarify how to engender a common apprehension of strategy. Strategy comprises many dimensions so that the solutions of one dimension are transformed into the problems of another.

“**Conical**” thinking

Conceptualizing strategy using the conical symbol (see Figure 1) is an attempt to capitalise on the advantages of different views of strategy. Firstly, there are many beneficial effects to be derived from the concept that strategic development is to some degree at least linear and logical and that strategic activity is orientated in a targeted direction. The model is based on the concept that any strategy will focus on realising an identifiable set of objectives. Secondly, it should also be acknowledged that the way towards accomplishing these objectives is far from simple, and that both substantive and procedural issues will play a significant role in delaying, changing, damaging or even enhancing the realization of a specific set of strategic goals.
Hill (1993), De Meyer and Ferdows (1987) demonstrated that while enhancing the focus on market requirements is essential, an operation strategy provides a competitive tool to respond to market requirements. Likewise, operations strategy that is resource-oriented, fixes attention on technological capability, resources availability, processes and core competencies found in the operational systems to promote a learning system that stimulates sharp competitiveness (Long and Vickers-Koch, 1985; Hayes, 1985; Hayes and Upton, 1998; Hayes and Pisano, 1994). A greater part of the scholarly work done so far on resource and market oriented approaches is still mostly at the theoretical level, and only now are researchers starting to empirically verify the practical viability of these approaches. As both approaches have their respective advantages and disadvantages, they both indicate two points from which to commence in order to comprehend the nature, scope and logic relating to operations strategy. The present study therefore focuses on the following research questions:

• How are market necessities related to operational decisions? (market-based view)
• How does a company’s core competencies, resources and operational capabilities influence its market position? (resource-based view)
• What are the consequences of linking the two views which are based on resources and markets respectively, by using business processes, or in the alternative, how could a company integrate its market and resource based strategies through business procedures?

The different literature available, relating to the market and resource based approaches to strategy management, share a common acceptance of some major issues that may come to constitute the foundation of a “dynamic strategy management process” (Acur, 2001). Firstly, employing a market-based approach to strategy might assist companies to choose one or two key competitive dimensions, and request management to meet the appropriate award winners and qualifiers. Secondly, a resource-based attitude to strategy might facilitate to concentrate on developing, safe guarding and leveraging a company’s operational resources and advantages to change the direction of competition. These two issues entail active integration of learning and culture within operations. This comprises a two-way integration process, where operating capabilities point the direction in which strategy should go, with required feedback coming from the marketing perspective as to what operations could do to maintain and stimulate competitiveness.

**What can strategists draw upon from such contemporary theories and thinking in formulating a strategy for a contracting company?**

There is no unanimous consensus or commonly accepted definition as to what strategic management is or how it should be implemented. It is left to the discretion of various strategists to choose their models of preference and execute their options. Usually, the strategic management process comprises five stages which empower an organization to accomplish its goals. These are:

1) Strategic review  
2) Strategic Analysis  
3) Strategic choice  
4) Strategic implementation  
5) Feed back.

Strategic decisions are usually taken by the top management guided by long years of experience and business acumen. These can be called “Trial & Error” strategies. Experience is definitely useful because it exemplifies how the individual and collective experience of people when taken together with the standard assumptions and routine practices of organizations point the way to future strategies which are modifications and adaptations of past strategies (Johnson & Scholes, 2002).

The practical strategies implemented by organizations evolve by an on-going process of accretion whereby minor adjustments are added to the existing strategy over a period of time to achieve cumulative change (Johnson & Scholes, 2002). Even to effect minor alterations the organizations must go through the five stages of the strategic management process. In the strategic analysis stage the strategists are able to identify the main issues affecting the contracting company and its prevailing situation. This phase requires the strategists to employ the tools fashioned by the theorists in order to analyze actual and potential threats, recognize crucial opportunities and other important factors and thus facilitate correct decision making. The competitiveness and ability can be analyzed with the help of Porter’s five forces model. Furthermore, competitor analysis could be used to analyze the competitiveness of organizations. The
external environment that impacts an organization could be analyzed with recourse to value chain analysis. SWOT Analysis is the most commonly used tool by a majority of companies to analyze internal and external environment.

The status of an organization from a financial perspective can be ascertained by analysis and evaluation using such tools as Decision tree analysis, planning of portfolios and actual option evaluation. By employing such tools a balance could be reached between risks and returns. Usually companies engaged in contract work would need a considerable sum by way of working capital in order to proceed with a project. Furthermore, as the construction industry is riddled with contingencies and surprises, and is also very vulnerable to a wide variety of accidents, Insurance coverage and adequate timely funding comprise an integral and indispensable part of the overall financial strategy.

In the operational stage of projects in a contracting company, it’s imperative to have a strategy in place after careful analysis, to provide for the logistics of the operation, procurement choices, productivity, human resources & machinery management, and the procedures and methods to be followed in the successful handing over of projects, and the completion of the projects in time and within the budget. Raw materials like steel and cement, and resources in the nature of equipment and labour provide the basic inputs of the construction process. Thus, the resources market can create opportunities as well as threats to construction companies. With the multiplicity of projects being publicised, the contracting companies in the UAE are confronted with problems in obtaining the required raw material and resources to complete the projects in hand. Even the Suppliers are overloaded with prior commitments and contractual obligations for the delivery of massive quantities of supplies. So, in such volatile conditions one of the main strategies for a contracting company should be to concentrate on maintaining a better, trustworthy and reliable supply chain.

In contracting companies, the fundamental questions of technology strategy, still remain in the domain of choices and means for technology development. When technology is implemented three Primary issues require analysis. These are pioneer versus follower, Integration and assessing the relative importance between basic and applied research in order to allocate resources. Human resources constitute the most vital component of the contracting companies. Therefore, a strategy needs to be developed and due consideration should be given to issues like training programmes, employment and labour laws, union management, work incentives and compensation policies. Given the current situation of low construction work in the UAE, only a policy on human resources which could keep abreast of it could be successfully implemented.

When the construction boom was in the UAE, the client base has widely diversified. Private clients, owners of real estate, the government, semi government institutions, foreign investors etc. are some of those who invest in the construction market for new projects that are being announced with regular frequency. Residential buildings, groups of villas, commercial buildings, shopping malls, roads, bridges, storm water drainage, water networks and many other projects are being given high publicity. In such situations strategists could profit from the thinking and theories of market segmentation. Strategists can focus on a specific segment depending on their perceived strength. Market segmentation can be exploited by a contracting company to excel in those areas where it has a competitive advantage.

Conclusions, further research and development

Operating minus a strategy is directionless and will be an impediment for the future development of an organization. A corporate strategy specifically adapted to the particular company structure should be chosen and implemented, and its efficacy should be regularly monitored through proper feedback. The derivation of corporate strategy should be totally different from student case studies made in class rooms where many unrealistic assumptions which are impracticable and arbitrary are made and could lead to failures, and possess very little chance of durability. Strategy is planned by the top management of the company, usually by the chairman or the general manager who has vast experience in the field normally extending up to 20 to 30 years working in similar environments, undergoing various difficulties, omissions and failures, and finally discovering feasible solutions to overcome those obstacles, and eventually conquering and recovering successfully to develop a good visualizing power of the beginning and end of a problem, and identifying the magnitude of the problems using the Ice Berg Technique.
Certain marketing theories can be imported by the consultancy firms to suit the industry rather than the business field. Product differentiation could be implemented by introducing a prequalification for tenders which will screen the entrants by providing a barrier and blocking inexperienced and unqualified organisations from entering the field and competing with the highly experienced and qualified organisations by offering cheaper rates.

Market segmentation could be implemented through innovative expansion into different fields such as Project Management, Building Industry, Infrastructure Development etc. and thus deviating from the traditional practices by exploring the opportunities in the market for wider expansion and greater profitability.

It is futile to implement strategy if it is not workable throughout the organization from the top level right to the bottom, up to the production staff, and yield suitable success and returns back to the top level through development and improvement. It is the supreme accountability of management in strategic planning to choose what will be practicable in terms of process, long term sustainability, and consistent profitability. Strategists should possess a sound knowledge of the business environment in which the company operates and the economic background and conditions prevailing in the country where it is located, as well as the diversity or variation to which it is subject both instant or long term, and the economical sanctions that are being applied. Strategic planners have also to take into consideration the political stability of the country, the requirements of the ruling party, budgets, financial stability, speed of receiving payments from the clients and their reliability, investment trends in construction industry etc. The ability to compete with rivals and the elimination of rivals by the adoption of successful tactics, and having the necessary insight to understand the strengths and weaknesses of rivals is a prerequisite for a successful strategist.

References:


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**Turriff Construction Ltd v Regalia Knitting Mills Ltd (1971)**

*Turriff tendered for the design and construction of a factory, and when told that their tender was successful asked for a letter of intent ‘to cover us for the work we will now be undertaking’. The letter was issued stating that it was subject to agreement on an acceptable contract. Turriff began design work, and six months later Regalia abandoned the project.*

*Held that Turriff request for a letter of intent made it clear that they required reassurance that they would be paid, and the letter contained that assurance. There was therefore consensus ad idem and a contract was found to exist.*
Guaranties and Warranties, A QS’s Nightmare or Their Dilemma

Dr. M. Haris Deen BSc, MBA, Phd, FRICS, MAACE

Dr. Deen, has over 45 years experience in the construction industry, having served in various capacities starting as a Junior Engineer and progressing through to Vice President. Dr. Deen is presently an Advisor to Ashghal in the State of Qatar.

I have frequently been asked by Quantity Surveyors and Engineers alike, very senior people as well as students, to explain the difference between Guaranties and Warranties. This becomes even more confusing to some when lecturers speak about collateral warranties in respect of construction contracts.

Guaranties and Warranties have immense significance in the interpretation and administration of contracts. Both have the same meaning but in different contexts. In respect of a construction contract this can best be demonstrated by a diagram as follows:

The above diagram suggests that the contractor provides a Guaranty to the owner and the sub-contractors and suppliers give guaranties to the contractor respectively while warranties are obtained from manufacturers of plant, materials and goods they supply for incorporation in the works. The ultimate producer of the construction facility is the contractor and he guarantees to the owner that he has constructed the facility to the details and dimensions shown on the drawings and using the materials and workmanship as required by the contract specifications and also that his sub-contractors have done the same. He will also guarantee that the materials that he has procured from his suppliers have been guaranteed by his suppliers as being of the respective kinds as specified in the contract specifications.

A Warranty on the other hand (as far as our discussion is concerned) is a written guaranty given by the manufacturer to the contractor or sub-contractor whoever the purchaser is (through the vendor, the manufacturer’s vendor). This in fact is an agreement assuming responsibility for the proper functioning of the product and that the product is fit for purpose. It is a promise or assurance given in writing that attests to the quality of a product or service or a pledge that something will be performed in a specified manner.

So what is the difference? Most of my students and also practicing quantity surveyors often ask me this question,
mainly at the time a project is completed and being taken over.

Defining a Guaranty seems simple but if a Warranty is also a guaranty why should it be identified differently? Looking at the diagram I have given above, it would appear that the contractor, by virtue of the contract, guarantees to the owner that he will do whatever he has contracted to do using the specified materials and best workmanship to produce the final end product to the satisfaction of the owner. Similarly, the sub-contractors, by virtue of their contract with the contractor have guaranteed to the contractor that they will likewise deliver their part of the works in the same manner. Insofar as the supplier is concerned, he can guarantee only that the materials, plant and goods supplied by him are of the brand and type ordered by the contractor and at the time he supplied them the manufacturer has warranted (guaranteed in writing) that the materials, plant and goods are of the specification that is written down.

Guaranties provide additional rights which could be a useful back-up in case of a complaint. Therefore, one must make sure that a manufacturer’s guarantee given in the form of a warranty is written in clear and unambiguous terms and bears the vendor’s stamp of authenticity. It is good practice to read the small print contained in a warranty in order to ensure that the product that is being bought is manufactured as specified and meets to owner’s requirements. It is also essential to ensure that the vendor supplies the buyer with the manufacturer’s registration card duly filled for the buyer to return this card to the manufacturer. This will serve as proof of purchase on the date the materials, plant or goods were purchased. This warranty is effective only when the buyer returns the registration card to the manufacturer to the address stated in the card.

For some plant or equipment like air conditioners, chillers, generators, heat exchangers and the like the manufacturers provide warranties extending beyond the normal defects liability period. Besides, even in the case of the normal one year warranty this might extend beyond the defects liability period depending on the date of purchase, or vice versa. This is a serious dilemma for the quantity surveyor who is administering the contract. To whom does he turn to when a breakdown happens?

In the same vein is the legal requirement in most countries for decennial liability guarantees from contractors. In most Middle Eastern countries the contractor and the designer are jointly and severally liable for stated defects including subsidence for ten years from the date of completion. A ten year guarantee of this nature is worthless if the contractor and the designer both go out of business during this period. In the United Kingdom and all European, American and North American countries, this is underwritten by insurance companies, thereby transferring the risk to insurance. In the UK there is the National House Building Council (NHBC) insurance for its members.

While the owner is protected from the contractor’s guarantee by the provisions of the contract for the duration of the defects liability period and any manufacturer’s warranty granted to the contractor during that period, what happens after the contractor is relieved from his obligations on the issue of the final certificate by the owner? As established in the case of Donoghue v Stevenson [1932] All ER Rep 1, the neighbour principle adduced by Lord Atkins will apply and the owner will have no remedy as he has no contract with the supplier. How, therefore can the quantity surveyor advise the owner to overcome this difficulty?

According to English law, liability arises where the defect becomes evident to the consumer within two years of delivery of the goods, unless the defect was or should have been apparent to the consumer at the time of the sale. Any defect apparent within six months of delivery is presumed to have existed at the time of delivery unless proof to the contrary is furnished or this is incompatible with the nature of the goods or the defect. The Sale and Supply of Goods to Consumers Regulation 2002 (UK) requires that when a guaranty is given free of charge with a product, it must be made available in writing and the terms of the guaranty should be set out in plain language which can easily be understood.

But whatever the law says considering the decision in Donoghue v Stevenson cited above, it will not be worth the paper it is written on for the owner, because he did not buy the goods - as such he has no contract with the manufacturer and his claim will be too remote, thus not meeting the requirements of the neighbor principle.

The difficulty in a construction contract arises when the facility is taken over and the operations and maintenance
of the facility are thereafter transferred to the owner’s staff. How can the owner protect himself from a litigious situation arising out of this?

Prior to 1980 owners were able to obtain damages against negligent contractors and consultants through the courts without the need to demonstrate that they had any contractual rights. In fact they have no contractual rights in respect of a third party warranty. This all changed with the 1988 decision in the case of D&F Estates v Church Commissioners in 1988 where it was held that owners and occupiers of buildings needed a contractual remedy in order to pursue claims for certain types of losses. Thus the era of collateral warranties was born.

A collateral warranty is a contract which gives a third party (the owner) collateral to rights in an existing contract entered into by two separate parties (the contractor and the manufacturer or contractor and the sub-contractor or even the contractor and any consultant). Collateral warranties bring about a concentration of interests between those giving such collateral warranties and those receiving them. It is however not as simple as it sounds. The collateral warranty must be executed as a deed to be effective, the reason being that no consideration has passed between the owner and the manufacturer and a contract executed any other way will not be valid. There are several standard forms available. One such form is the one published by the British Property Federation and is designed to limit the warrantor’s obligations.

Collateral warranties must be considered at the very outset of a construction project. It is essential to include in the construction contract and consultants’ appointments the necessary provisions to protect the owner from any adverse effect on the marketability and value of the project.

The owner may require warranties from sub-contractors and consultants, particularly from those with design responsibility. Warranties from the contractor and design consultants are of prime importance. Sometimes it might be required to obtain such warranties from other consultants and sub-contractors alike depending on the extent of their involvement in the project execution.

Whatever the form of warranty selected the words therein must be very carefully formulated to include the correct warranties and the period. Sometimes the warranty is underwritten by insurance in which case the terms of the insurance must be meticulously inspected for exclusions or other adverse conditions set by the insurers.

The collateral warranty ensures a clear right for the owner to take action against the third parties who provide these warranties which he would otherwise be denied.

It would by now be clear that there is no difference between a guaranty and a warranty except that a warranty is a written guaranty.

Chichester Joinery Ltd v John Mowlem & Co plc (1987)

A quotation submitted by a sub-contractor was accompanied by their standard terms and conditions. The main contractor sent a purchase order containing their own standard terms which stated that ‘any delivery made will constitute an acceptance of this order’. Sub-contractors delivered the work, but not until after they sent the main contractor a printed acknowledgement of order, which stated that the order was accepted ‘subject to the conditions overleaf’.

Held that by accepting the joinery the main contractor had accepted the sub-contractor’s conditions.