PART I - Contract Formation: Consideration of Risks in Construction Projects

1. Introduction

This workshop theme notes that ‘the origin of many a dispute can be traced back to acts or omissions that occurred before or at the time of signing the contract’. This is indeed true. The workshop hopes to investigate preventative strategies.

One of the most important preventative weapons is for the parties to fully understand the basic factors inherent in choice of method of contract procurement and choice of contract conditions. And an integral and essential requirement is that the parties involved should have a full understanding of the role that risk plays in a large scale international construction project.

Let us therefore spend a few moments considering the risk aspect and its importance in a construction contract.

2. Risk in Construction Projects

The construction industry is a high risk industry. There are serious risks for all parties involved, and these have to be addressed and suitably dealt with by the parties. It is thus fundamental for the construction industry and for those involved to understand the concept of risk and to know how to manage properly the many varied risks encountered.

It has been said that the main purpose of the conditions of contract is to identify the principles of allocating the risks facing the contracting parties. Management of the risks involved, and their allocation between the parties, can be said to have an overriding importance in any construction project, and to govern the conditions under which the work is executed, the cost of the work, and often the eventual overall success or failure of the project, not only to the employer but also to the main contractor, the subcontractors and the others involved.
3. **Employer’s Project Strategy**

There are many different factors and many different parties involved in a construction project, and there are a number of different routes which may be followed to achieve the final working constructed project (i.e. the facility). At the initiation of a project the employer or ‘owner’ (the one who wishes to have the facility constructed) must develop his ‘project strategy’ if he hopes to achieve a well-functioning facility at a reasonable cost and within a reasonable time. Among the more important aspects he must consider at the outset are: Who will do the design? What will it cost? Who will provide the finance? What construction time is acceptable? Who will operate the facility after completion?

These, and other important basic considerations, will lead to the ‘project strategy’, which will in turn lead to the type of construction contract to be utilised - traditional employer design and contractor build; or contractor design and build; or ‘turnkey’ with full responsibility on the contractor; or turnkey including operation, or another, and to the way of financing – employer finance; contractor finance; private sector financing; shared financing, etc. Further development of the project strategy will decide on the possible division into different contracts – single construction contract; separate civil contract and electrical and mechanical contracts; or other division of the total project works.

However, assuming that adequate precautions are taken to select a competent contractor(s), probably the most important element of the project strategy will concern the allocation of risks between the parties – How much risk is the employer prepared to take, and how much does he wish to transfer to the contractor or contractors?

4. **Allocation of Risks – Balanced Risk Sharing**

Assuming there is one main contract, all risks must be allocated to one or other of the two parties to that main construction contract, i.e. the employer or the contractor. A risk cannot be not allocated to one or other of the parties – a risk cannot ‘be left hanging in the air’. If a constructed facility has a defect it could have been the result of a number of circumstances, e.g. poor design, bad materials, bad workmanship, wrong instructions, weather conditions, force majeure, war, etc. If the defect is such that the completed facility cannot fulfil its intended function, in other words it just won’t work despite reasonable attempts at repair or modification, then the cause probably will be bad design. Thus, one of the most important considerations regarding risks in a construction contract is which party has carried out and is responsible for the design.

An overriding principle, accepted by the IFIs, FIDIC and all serious actors and debaters, is that the most beneficial distribution of risk for all the parties as a whole is to allocate each risk to the party that is in the best position of the involved parties to deal with and handle that particular risk. Such risk distribution will in general lead to the lowest contract price.
This principle, however, is not always easy to follow as it can be difficult to determine which party can deal best with a certain risk. Nevertheless, in all construction contracts the contractor certainly is the best placed to deal with all risks concerned with the planning and execution of the construction work, e.g. provision of labour, materials and constructional plant, and all risks that may arise therefrom, e.g. quality of materials and workmanship, safety of site operations and so on. All risks arising from the design shall obviously be borne by the party responsible for the actual design (in the traditional project, the employer), and similarly all financing risks shall be borne by the party providing the finance (again, the employer). For the employer he obviously has to take the risks of providing the site and seeing that it is available for the contractor to carry out his work, and usually all risks arising from information he has collected about the site and other information contained in the tender dossier. It is also normal accepted practice that the employer bears all the risks of unknown or unforeseen circumstances. For an employer-designed project it would be unreasonable to expect a commercial contractor to assume such risks.

Practice over many years and a great many projects has shown that a sensible balanced risk sharing between the contractor and the employer results in the lowest overall total cost for completed projects. Balanced risk sharing means that the party most suitable to bear a particular risk is allocated that risk. Thus the contractor takes all the risks associated with his business of contracting, i.e. plant, labour, construction methods, transport, etc., while the employer takes the risks inter alia of the unforeseen and unexpected, i.e. items that are difficult or impossible to price accurately in advance. Thus the employer only pays the extra costs when an unforeseen hazard actually occurs – he does not have to pay what the contractor would have allowed for in his price to cover himself if the hazard did occur. (In a particularly unlucky project where an employer-risk actually occurs with expensive results, then that will be an exception to the rule).

5. **Risks Cost Money**

It has been stressed that ‘risks cost money’. Someone has to pay the consequences if a hazard event occurs. Therefore, from an employer’s point of view, the fewer risks one asks the contractor to bear, the lower the contract price will be. At the one end of the scale, where a ‘cost-plus’ or ‘reimbursable’ type of contract is used, the employer carries the bulk of the risks, and the initial contract price is low. On such contracts whenever an unexpected hazard occurs the contractor gets paid the extra costs by the employer. The result is that the final contract price is usually very much higher than the initial price. At the other end of the scale, where a ‘fixed price’ or ‘turnkey’ type contract is used, the employer seeks to pass over as many of the risks as possible to the contractor, and the initial contract price is high. The aim in this case is that the employer will not pay any extra, although invariably some extra will be payable, but the final price will anyway be close to the initial price. Experience over a great many projects has shown that a sensible and fair sharing of risks between the employer and the contractor over the long run produces the lowest final contract price, considerably lower than is the case for either of the extremes mentioned above, i.e. ‘reimbursable’ type vs. ‘fixed price, turnkey’ type.
This is the route that FIDIC has traditionally followed, and there is still a balanced risk-sharing between the employer and the contractor in the Construction and Plant and Design-Build Books. In the Silver Book more risk is placed on the contractor for reasons that are explained later.
PART II – Some Salutary Notes

1. **Misconception re Employer’s Risks – Cl 17.3**

There is an unfortunate popular misconception that all the Employer’s Risks are listed under Clause 17.3 of the New FIDIC Books, and consequently all other risks are the Contractor’s Risks. This is of course nonsense, as many of the Employer’s risks are to be found scattered over many clauses of the contract, for example, he has to provide the Site, he may have to provide the drawings and be responsible for them, he has to provide the Engineer and so on.

What Clause 17.4 explains is that ‘if .. any of the risks listed in Sub-Clause 17.3 results in loss or damage to the Works..etc..’ then the Employer will be responsible for paying any extra costs caused and shall give the Contractor time extension if warranted.

2. **Example – Cl 2.1 Possession of Site**

Motorway construction in Europe – Contractor ready to start on new section, but ‘environmentalists’ are shielding trees and preventing progress. Employer risk.

Ditto – Employer not in possession of farmer’s land for dam, transmission line construction.

3. **Example – Cl 4.12 Unforeseeable Physical Conditions**

Power station construction in Africa. Employer offered use of camp. Contractor based his tender on current condition of camp, claimed when condition had deteriorated.

4. **Example – Cl 1.4 Language**

Contract in Europe where App. to Tender states language shall be English or Finnish (for example). Can either be used? Which governs? Must everything be translated?

5. **Example – Appointment of DAB**

Contract in Europe with EIB financing. EIB has approved FIDIC and DAB concept. Cl 20.2 requires DAB within 28 days of signature. Not done. Contractor wants DAB, but Emp blocks. Emp tries to have domestic DAB, Con demands impartial 3rd country chairman. The impartial ‘Engineer’ of before has been replaced by an impartial DAB. Should financier not step in?
Part III - Allocation of Risks between Contractor and Employer under the 1999 FIDIC Contracts

1. The FIDIC 1999 Books

FIDIC – the International Federation of Consulting Engineers - published late in 1999 a suite of four new Standard Forms of Contract. This new suite comprises 3 Books for major works and 1 for minor:

- Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer: The Construction Contract

- Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor: The Plant and Design/Build Contract

- Conditions of Contract for EPC/Turnkey Projects: The EPC/Turnkey Contract

- Short form of Contract: The Short Form.

2. Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer

The New Red Book is similar to – and an update of – the Old Red Book, but with new features:

- Old ‘Red Book’ dealt only with civil construction work – the New Red Book covers all types of work designed by the Employer.
- suitable for all projects where main responsibility for design lies with Employer (or his Engineer)
- some design may, of course, be carried out by Contractor
- basically an update of Old Red Book
- administration of Contract and supervision by Engineer
- approval of work, payment, etc. certified by Engineer
- work done is measured, payment according to Bill of Quantities
- option for payment on Lump Sum basis
3. **Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by Contractor**

The New Yellow Book replaces both the Old Yellow Book and the Orange Book:

- Old ‘Yellow Book’ dealt only with electrical and mechanical construction works (most design being done by Contractor)
- the ‘Orange Book’ from 1995 dealt with Design-Build and Turnkey for civil and other construction where majority of design done by Contractor
- the New Yellow Book covers all types of work designed by the Contractor
- it therefore updates and replaces both the Old Yellow and the Orange Books
- New Yellow Book is thus suitable for all types of projects where main responsibility for design lies with Contractor
- recommended for the provision of electrical and/or mechanical plant, **and** for the design and execution of building or engineering works
- (the majority of such projects may well be electrical and mechanical works. Many will be a combination of civil, e & m, and/or building)
- some design may, of course, be carried out by Employer or his Engineer
- Employer provides ‘Employer’s Requirements’ to which Contractor designs
- administration of Contract and supervision by Engineer
- approval of work, payment, etc. certified by Engineer
- payment on Lump Sum basis, usually against a Schedule of Payments
- testing procedures usually more complicated than for ‘New Red Book’

4. **Some Features of the Construction Book and the Plant and Design-Build Book**

Identical or similar provisions are included in both Books for many matters:

- traditional competitive tendering procedures are envisaged
- risk sharing is balanced between Parties, as in Old Red and Yellow Books, e.g.
- Employer takes risk of ‘adverse physical conditions’ – Cl 4.12
- and unforeseeable ‘operation of the forces of nature’ – Cl 17.3(h)
- and design by Employer – Cl 17.3(g)
- in addition to war (anywhere), terrorism, riot, & similar (within the country), etc
- all claims, from either Party, have to follow a strict procedure – Cl 2.5 & 20.1
- Engineer must consult both parties and try to reach agreement
- if no agreement, Engineer makes ‘fair determination in accordance with the Contract, taking due regard to all relevant circumstances’
- if not accepted, then Dispute Adjudication Board takes over
- there is no longer the ‘Engineer’s Decision’, it is now the DAB’s
- Engineer is no longer stated to be ‘impartial’ as old Red & Yellow Books
• he ‘shall be deemed to act for the Employer’, except as otherwise stated – Cl 3.1

5. **New Book where Final Price is More Certain**

Old ‘Red and Yellow Books’ recognised for balanced risk-sharing, meaning that:
- Employer only pays extra when specific risks actually occur
- Contractor does not have to estimate for unlikely hard-to-value risks

BUT final price and time is uncertain

The Market has shown requirement for more certain final price and time in two ways:
- some Employers have – for many years - changed FIDIC Books balance to place more responsibility on Contractor
- development of privately financed projects (BOT etc) where lenders want definition of final price and time

for such projects Contractor is asked to cover a wider range of risks of final cost and time including often ground conditions, guaranteed result, etc

Employers must, however, realise that:
• essential that Contractors are given adequate time and opportunity to consider and evaluate all information and risks
• the price for the project will be higher to cover the extra risk-taking
• Employers will anyway have some risks

FIDIC therefore produced the Silver Book for:
• those projects where Employers want traditional projects with a more certain final price and less Employer-risk
• BUT as a Book where Parties enter the Contract with full understanding, and acceptance, of the risks (instead of trying to adapt another risk-sharing arrangement)

the EPCT Book is thus intended to be suitable for the many projects, both larger and smaller:
• particularly E & M and other process plant projects
• all types of employers
• where government employer or private developer wants his project on a fixed price turnkey basis and with strictly two-Party approach (i.e. no Engineer)

6. **Conditions of Contract for EPC/Turnkey Projects (Silver Book)**

EPCT is a completely new Book:
• responsibility for design lies solely with Contractor
• Employer provides ‘Employer’s Requirements’ to which Contractor designs
  - Employer’s Requirements usually ‘performance specification’ type
• Contractor carries out all engineering, procurement, construction providing a
  fully-equipped facility, ready for operation at ‘the turn of a key’
• no Engineer – instead it is the Employer
  - Employer may appoint an Employer’s Representative
• lump sum Contract Price (but adjustments in limited specified cases)
  - interim payments as work proceeds, usually against a Schedule
• testing procedures including Tests after Completion
• all claims, from either Party, have to follow a strict procedure
  - Employer must consult with Contractor to try to reach agreement
• if no agreement, Employer makes ‘fair determination in accordance with the
  Contract, taking due regard to all relevant circumstances’
• if not accepted, then Dispute Adjudication Board takes over
• Contractor takes majority of risks, Employer pays more to cover such risks
• final price and time of completion should be more certain

7. Comparison of Some Features of Plant and Design-Build
   and EPC/Turnkey Books

For EPCT the intention is that all matters that could cause a price change (incl. time
change) should – as far as possible - be sorted out and agreed before Contract signature
to ensure firm final price.

Notable differences between these two Books – apart from the extra risks allocated to the
Contractor – include (inter alia) the following:
- Employer administers the Contract – he can appoint an Employer’s Representative
- interim and final payments are made without certification, usually Schedule of
  Payments
- under P&DB the Engineer may issue necessary instructions - Cl 3.3. Under EPCT the
  Employer may only issue an instruction if he can state the obligations in the Contract
to which it relates - Cl 3.4

- both Books require the Contractor to design the Works to ‘be fit for purpose’ - Cl 4.1
- to enable the Contractor to accept this requirement he has to have complete
  information and sufficient time to scrutinize, verify and evaluate all relevant data.
- This is allowed for as follows:
- In P&DB Employer is ultimately responsible for his Employer’s Requirements – Cl
  1.9. However Cl 4.10 requires the Tenderer to obtain all information etc ‘to the extent
  which was practicable (taking account of cost and time) ’ before submitting the
  Tender
- Then, after Contract signature, he has a scrutiny period within which to find out any
  errors, faults or defects in Employer’s Requirements (as an experienced contractor
exercising due care would have discovered). Cl 5.1 Any such error entitles a
variation.
- In EPCT, the Contractor-to-be is expected – before Contract signature - to have
verified and interpreted all data from the Employer – Cl 4.10 – and obtained all other
necessary information – Cl 4.12 – and thus – on Contract signature - takes over all
responsibility both for the design as well as for the accuracy of the Employer’s
Requirements (including design criteria and calculations) – Cl 5.1
- Except that the Employer remains responsible for the matters under (a)-(d) of Cl 5.1,
i.e. basically matters which Contractor cannot verify.

- EPCT does not allow for ‘Unforeseeable Physical Conditions’ – Cl 4.12, but the
Book is not suitable when such unforeseeable matters constitute an appreciable risk.

- EPCT does not allow for time extension for exceptionally adverse climatic conditions
or un-foreseeable shortages of personnel or Goods due to epidemic or governmental
actions -Cl 8.4
- both Books allow for time extension for unforeseen delay by authorities – Cl 8.5

- EPCT does not allow partial taking-over or early use by Employer – Cl 10.2
- EPCT does not anticipate price adjustment for rise in costs – Cl 13.8

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