



# 1 International Construction Projects

## 1.1 The unique nature of the construction industry

The construction industry does not have clearly defined borders and its characteristics range from simple to complex. Construction supplies basic materials (such as aggregate, cement, steel reinforcement and pre-packaged mixtures) right up to cutting-edge technology developed and used by experts. The industry has contributed to, and is a vital element of, almost everything we see around us. For example, the diversion of water courses, land reclamation, houses, shopping centres, offices, factories, health care facilities and large infrastructure-related civil engineering works such as bridges, tunnels, highways, airports and harbours. Others installations include water treatment plants, dams, nuclear power plants, wind power plants and projects in the field of electricity generation. The contribution made by the construction of factories, warehouses and production lines that serve other industries, (including mining and research centres) cannot be ignored. The particular activities relate not only to new construction works, but also repairs, extensions, reconstructions and demolitions.

The diverse nature of the construction industry reflects the complexity of contemporary society as a whole, leading then to necessary specialization of particular activities in construction. A construction project is further comprised of complex processes, services and supplies reaching beyond the scope of this industry alone. For example, insurance, financing, bonds and guarantees, purchase of plant and equipment, security guards, operations and maintenance of work processes.

## 1.2 Individuality of construction projects

A construction project is a specific process or, rather, a sum of many processes. Mostly, it is an individual process. There are variables relating to the positions of its participants, their assignments and relationships, external conditions (concerning the economy, the nature of the site, climatic conditions, project risk and hazard



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levels in general), project management and delivery methods, procurement methods and public support.

Construction projects face hazards of various kinds, caused either by humans or natural elements. Therefore, people, time and environmental elements play a major part here. The construction project itself tends to be a unique set-up of processes with unpredictable impacts caused by individual hazards. For large construction projects, their duration will often exceed two years. These projects are realized over extensive areas and are often difficult to safeguard perfectly. Therefore, a construction project is not a production line you can just program to smoothly create a product, within a well-defined time, quality and financial outlay.

Design errors, extremely adverse climatic conditions, unforeseeable on-site conditions in physical or social terms, site access-related issues, building permit problems, delays due to the requirements of environmentalists and variations are just some examples of potential complications.

Effective risk management must be the aim of everyone involved in a construction project. In other words, to identify patterns and potential problems, variations, hazards and risks in order to manage them effectively. This can only be achieved through the perfect preparation of each particular project. This is the theory.

However, in practice, the lowest bid price tends to be the most important criterion in public tender evaluations nowadays. This is also a reason why contracts (for works or for design) that determine particular project relations must anticipate and involve transparent, efficient and reasonable solutions to potential problems and complications.

### 1.3 Roles and relationships

In the course of time, five main groups of construction project participants have emerged as major players in the construction industry. These groups are directly involved in construction projects or have an influence or a particular function within the industry. They are the contractors, designers, regulators, employers and users (Murdoch and Hughes, 2008). Lenders (banks), insurance and reinsurance companies must also be mentioned as further (indirect) construction project participants because of their significant influence on construction projects. We will now discuss these important roles in the construction project.

#### 1.3.1 Contractors

Most frequently, contractors can be encountered as either global or local construction companies. Construction companies differ in specialization and size – from small contractors for specialized activities up to supranational organizations that enjoy major industrial and political influence.

In the field of large construction projects, contractors often collaborate within joint ventures, setting up delivery chains at numerous levels. A general contractor enters into relationships with the subcontractors who further delegate parts of their obligations down to other specialized trade contractors, and so on down



the chain. A particular delivery method will influence the positions of the individual contractors.

### 1.3.2 Designers

The role of a designer is to provide the employer with solutions, drawings and specifications. Working on a construction project, the designer will often provide project management, contract administration and supervision services to the employer. When hearing the word 'designer', one usually imagines an individual, but less often a company providing the services in support of construction project realization. Today, the latter prevails, as design works becomes ever more demanding and too large to be dealt with by an individual on their own.

### 1.3.3 Regulators

In the construction industry, regulators apply their professional expertise, for example, in the following areas:

- land planning and related processes;
- building permit applications;
- health and safety;
- environmental issues;
- quality assurance;
- to ensure fair business competition; and
- to ensure proper management of public resources.

### 1.3.4 Employers

Project realization by the contractor is a service to the employer. Someone about to build a house for their family may be an employer. A developer, who is funding a shopping centre construction to sell to potential operators, may be an employer. The employer themselves may be a future owner or an operator.

A taxpayer, who is financing public projects via a public authority in the fields of transportation, infrastructure, construction of prisons, health care facilities, and so on, can also be considered an employer. An employer's characteristics depend, therefore, on whether the related funds are public or private. Significant differences between the private and public employers can be encountered. For example, in France, the contractor cannot suspend the works if the employer does not pay for the works performed in a public project. The so-called '*l'exception d'inexécution*' known in private projects in France cannot be used. According to article 48-3 CCAG Travaux 1976, the contractor can suspend the works only after three unpaid monthly invoices (Wyckoff, 2010).

In contracts, the employer is often referred to as 'the owner', 'the buyer' or 'the client', and so on. For the purposes of this book, we will mainly use the term 'the employer'.



### 1.3.5 Users

All of us are users of products that are the result of construction efforts – whether we like it or not. Our views on construction projects are often subjective and vary for many different reasons. Other vital aspects are how the public perceive the inconvenience and nuisance that can occur during the course of construction or if the public really think that there is a need for a particular building. Specific traditions and cultural influences of the relevant society are a significant factor as well.

As a field of activity, the construction industry is traditionally burdened by uncertainties that may cause distrust between the employer and the user.

## 1.4 Contract administration: The Engineer

Construction contracts are different from other commercial agreements because of the high degree of uncertainty. While the contract documents will provide a definition of the scope of works to be performed, a high degree of project complexity still leaves a lot of room for uncertainty along the way to the final result. This makes the task of administering the contract an important part of the larger process of ‘managing uncertainty’.

Furthermore, the question of ‘moral hazard’ is sometimes mentioned (Winch, 2010), i.e. the difficulties the employer can face in ensuring that the contractor will perform the contract in good faith and bring it to its desired outcome. As a rule, the contractor possesses better technical and managerial skills than the employer. The absence of a proper contract that will provide clear terms and procedures regarding all relevant aspects and an efficient risk allocation may leave the less informed employer exposed to the risks associated with moral hazard and suffering from a potentially severe compromise regarding the desired outcome.

On the other hand, large public procurement construction projects are often accompanied by political irresponsibility on the employer’s side, mainly when problems are encountered. Nobody wants to be responsible for cost overruns and delays. To avoid responsibility, employers sometimes shift the risk of negative consequences of badly prepared projects onto contractors (e.g. delayed expropriation risk or bad ground conditions risk in underground works). Such ‘one-sided contracts’ actually negatively affect the smooth implementation of projects and consequently are considered disadvantageous to the borrowers due, amongst other things, to the late completion of the project (JICA, 2011). If this is done systematically, it is also dangerous for society. From a socio-economic point of view, it leads to frustration and a waste of resources in the short term and more expensive construction works and damage to the local economy over the long term.

Corruption is another ‘moral hazard’, which is much more serious and afflicts the construction industry as a whole.

There are certain well-known rules of risk allocation. The ultimate rule is that risk allocation must be efficient and if there is a non-insurable risk that is hard to quantify, the risk should be borne by the one who bears the majority benefit. It is self-evident who bears the majority benefit if it is a public construction project. In this case, it is the employer and the users. Furthermore, the state as an employer is



often the stronger party (applying a take it or leave it approach to contracts). Thus it seems to be appropriate to apply the principles of protection of the weaker party (the contractor) in such public construction projects.

Another principle that must be stressed is the principle of good faith protection. The governing law usually does not protect the one who is not fair, misuses their position and, as in the case of public employers, invites contractors to deliver projects where risks are speculatively shifted onto contractors and the terms of reference of the particular contract happens to be a sophisticated trap.

Another problem seems to be the fact that international contract forms are often 'imported' to developing countries. Naturally they are less familiar to the local employers in both legal terms and working procedures (Banica, 2013). Employers in both the private and public sectors do not pay enough attention to the uneven knowledge asymmetry when facing and entering an agreement with a contractor, as well as to the need to manage this risk through contractual means and by employing a consultant as contract administrator or project manager. Employers tend to show an exaggerated optimism and focus extensively on establishing an initial contract price, without a clear understanding of the importance of setting clear rules regarding the management of change, regardless of the source of the change such as claims, variations, disputes, additional work, etc. (Banica, 2013).

Add to this the fact that the construction industry in developing countries (still in the first stages of modernization) has not yet formed a body of knowledge or produced a significant number of contract managers/consultants familiar with international contracting and procurement practice and the local specificities and working culture (Banica, 2013).

The position of the 'contract administrator' is of key importance. A contract administrator hired by the employer on a professional service agreement basis deals with coordination, monitoring, supervision of compliance with standards, certifies the works done, testing, taking over, participates in variation, price and time management, claim evaluation, contract interpretation and dispute avoidance. They should help to complete a successful project in a fair way and in accordance with the contract, achieving the demanded standard in the agreed time and for the agreed price.

The contract by itself is not enough to solve the problem of moral hazard and the asymmetry of knowledge between the employer and the contractor. The second key element required is the presence of a third contractual party – namely, the contract administrator (Banica, 2013).

In terms of contract administration, there are three usual arrangements in force:

- The 'engineer' as an employer's agent, whose job is to monitor and supervise the work, whose duty is to make fair determinations on certain matters (e.g. on claims for extension of time and additional payments; see an example of such determination in Appendix 6). The engineer issues certificates on payments, taking-over and performance.
- The employer's representative where the contract is administered directly by the employer or its representative. If the contractor is to achieve the certainty of time and price stipulated, then the involvement of the employer must be limited to a minimum during construction.



- The construction manager as an employer's agent hired to coordinate all processes on a professional service agreement basis without direct responsibility for design and works (see Chapter 3).

### 1.4.1 The Engineer

The engineer's rights and duties consist simultaneously of two parts. The first is acting on the employer's behalf, where the contractor can take the engineer's conduct as the employer's conduct and misconduct (such as the engineer's instructions regarding variations). Acting in their second role, the engineer is an impartial third party who is professionally skilled to maintain an equitable balance between the contractor and the employer (such as in settling disputes). The independence of the engineer (an entity/person appointed and funded by the employer), often becomes the topic of numerous debates. It is in the interests of all construction project participants to ascertain and clarify the engineer's competencies to limit disputes about who will, in fact, act as the engineer on a particular project. The question, 'What are the attributes of the engineer and when can a party be said to have tacitly accepted someone as the engineer?' (ICC, 2009) was answered, for example, in the ICC case no. 10892 (the tribunal found that the engineer was the employer itself in this case).

A competent engineer (allowed to do their work by the employer) is in many cases a mandatory prerequisite for a successful construction project. A company or a group of consulting engineers and designers are mostly acting in the role of 'engineer'. Their specific representatives have to be appointed for particular activities. An engineer can also be an employee of the employer, but this is a very problematic approach in practice. In respect of this, Jaeger and Hök (2010, p. 222) refer to a decision of the Arbitration Court of the International Chamber of Commerce. In this case, the arbitrators dealt with the replacement of the engineer with an employee of the employer (where the employer was a statutory body). According to the arbitrators, this replacement resulted in contract frustration. The authors support the view that it is unacceptable for the employer and the engineer to come from the same organization. However, in this case, the International Federation of Consulting Engineers (FIDIC) conditions included an express impartiality clause.

As a rule, the engineer's individual rights and duties are assigned by a particular agreement with the employer. The engineer is typically entitled to give the contractor instructions related to work executed (and to remedy any defects) and the contractor is obliged to follow their instructions. The engineer must usually, for example, clarify any ambiguities and discrepancies should they appear in the contract. But it is not within the engineer's powers to change the contract – they are not, therefore, empowered to relieve either of the parties of their duties, commitments or responsibilities arising from the contract. Their assignment does not exempt the contractor from any liability they have under the contract.

The engineer should be a professional with all necessary skills and experience, and have a good knowledge of the contract and contractual procedures (e.g. methods of re-measurement, delay procedures and disruption). The engineer should be able to foresee all legal, commercial, and technical consequences of their instructions, particularly those that lead to variations. They should be able to fairly evaluate the



adequacy of new rates or prices where it is necessary to create them. The engineer should also be able to fairly determine – in terms of claims – additional payment or extensions of time for completion (Jaeger and Hök, 2010).

According to the FIDIC CONS MDB/Red Book (2005 MDB Edition), the engineer has the following roles (JICA, 2011):

1. *Employer's agent*: the engineer provides the following services to conduct the contract management:
  - production of detailed design drawings under Sub-Clause 1.9;
  - issuance of instructions for variation of the works under Sub-Clause 13.1;
  - review of plans and drawings submitted by the contractor under Sub-Clause 4.1;
  - carrying out project management services including time and cost management, quality control, testing and inspection, safety and environmental management under various Sub-Clauses especially 8.3, 13, 7, 9 and 4.9.
2. *Certifier*: the engineer issues various certificates certifying the quality of the contractor's performance and payment is therefore at the engineer's discretion. The engineer's certificates have a strong binding effect on both the Employer and the contractor. Examples of certificates follow:
  - taking-over certificate under Sub-Clause 10.2;
  - certification of work completion date under Sub-Clause 11.9;
  - interim payment certificate under Sub-Clause 14.6;
  - defect liability certificate under Sub-Clause 4.9;
  - final payment certificate under Sub-Clause 14.13.
3. *Determiner in claim settlement*: The contractor has a right to claim settlement from the engineer. The engineer should consult with both parties on the matter in question based on Sub-Clause 3.5 in order to come to an agreement. If the consultation reaches an impasse, a fair determination should be made based on the contract.

### The Engineer's certifications and fair determinations

Within the scope of their activities, the engineer can issue various types of certificates. The FIDIC forms, for example, presume numerous certificates. These include interim payment certificates, final payment certificates, taking-over certificates and performance certificates. Pursuant to the FIDIC forms, any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test or similar act by the engineer (including absence of disapproval) shall not relieve the contractor of any responsibility they have under the contract. This includes responsibility for errors, omissions, discrepancies and non-compliances. Pursuant to FIDIC forms, for example, it further applies that the engineer may, in either of the payment certificates, make any correction or modification that should have properly been made to any previous payment certificate. A payment certificate alone shall not be deemed to indicate the engineer's acceptance, approval, consent or satisfaction.

Under FIDIC, whenever the employer or the contractor submits a claim, the engineer is required, in the first instance, to mediate between the parties to facilitate agreement. If the parties cannot agree, the engineer must make 'a fair determination



in accordance with the contract, taking due regard of all relevant circumstances'. Accordingly, any determination must express the rights and obligations of the parties in accordance with the contract and applicable law, irrespective of any preference expressed, or pressure exerted by either party.

In terms of engineer certifications, it is very interesting to compare the opinions of lawyers from different countries (available at: <http://globalarbitrationreview.com>) who responded to the following questions:

1. When must a certifier under a construction contract act impartially, fairly and honestly?
  2. To what extent are the parties bound by certificates (where the contract does not expressly empower a court or arbitral tribunal to open up, review and revise certificates)?
  3. Can the contractor bring proceedings directly against the certifier?
- *England and Wales*: Where a person is employed by the employer under a construction contract to issue certificates or make decisions as part of the administration of the contract, he is required to act in accordance with the contract, fairly and impartially, and holds the balance between the employer and the contractor. Whether or not a certificate is binding and conclusive will depend upon the interpretation of the contract as a whole. If the contract, properly interpreted, provides that a certificate is to be binding and conclusive, the grounds for attacking such a certificate are much narrower. Inclusion of an express power for arbitrators to open up, review and revise certificates is necessary if arbitrators are to have that power. By contrast, no express wording is required in order for the courts to have the power to open up, review and revise certificates, etc. Nevertheless, the absence of the open-up review and revised wording does not necessarily mean that the certificate cannot be challenged in arbitration. Unless the contract provides that a certificate is to be binding and conclusive, it can be attacked on various grounds, including where the certifier acted outside his jurisdiction, dishonestly or partially in issuing the certificate or where the certificate is otherwise defective as a matter of form, substance or intent.

Where the certificate can be opened up, reviewed, revised or otherwise challenged, the contractor will, unlikely, have a cause of action directly against the certifier. Absent the ability to challenge certificates, it is possible that the contractor may be able to proceed directly against the certifier but the contractor would have to show that the certifier owed it a duty of care in issuing the certificate and that the certifier was in breach of that duty. This will depend upon the facts (Choat and Long at [globalarbitrationreview.com](http://globalarbitrationreview.com)).

- *France*: Architects or engineers who verify payment certificates as part of their supervision of the works must act with due care within the scope defined in their contract with the employer. The extent to which parties are bound by certificates will generally depend on contractual terms. Where there is an over-certification of payments, the certifier may be held jointly liable with the contractor. Administrative case law also shows that a contractor can bring proceedings against the certifier (Gillion and Rosher at [globalarbitrationreview.com](http://globalarbitrationreview.com)).





- *Germany*: A certifier under the construction contract is obligated to act impartially, fairly and honestly. Such obligation derives from its mandate/contract with the parties and – depending on the nature of the certifier – from its administrative duties deriving from his or her official role as (state-certified) certifier. The parties are generally not bound by certificates, but may have them reviewed under the construction contract's dispute resolution regime. Claims may be brought against the certifier him or herself outside of the contract by both the contractor and the employer as obligations and duties of care are created through the mandate to certify certain facts in connection with the construction contract (Kremer at <http://globalarbitrationreview.com>).
- *Ireland*: There is an implied contractual obligation for the certifier to act independently, fairly and impartially as between the contractor and the employer. It is not unusual in Ireland for the employer to appoint an employee within its organization as an employer's representative and certifier under the construction contract. The commonly held position in Ireland prior to 2007 was that a contractor was entitled to enforce an interim payment certificate by way of summary judgment as a debt due. Following the decision of the Irish High Court in *Moohan & Bradley Construction Limited v S&R Motors Limited* (2007), contractors operating under the standard RIA contract terms can no longer rely on being awarded summary judgment in court on interim certificates where a valid defence is raised. In such cases, even where judgment is granted, the execution of that judgment may be stayed pending the outcome of an arbitration hearing on all the issues between the parties (Killoran, O'Higgins and Cooney at <http://globalarbitrationreview.com>).
- *Korea*: (1) A certifier or an engineer is administered under the *Construction Technology Management Act* ('the Act'), which categorizes the work scope of a certifier into three different areas: design, inspection and survey, and construction. The Act requires any certifier to act honestly, with dignity and in the interests of quality improvement. (2) The parties are bound by certificates to the extent required by the contract, but these are not mandatory requirements for the completion of the works under the contract. (3) The contractor may bring proceedings directly against a certifier based on wrongful conduct and is able to claim damages for tort liabilities, which is also stipulated in the Act (Oh and Park at <http://globalarbitrationreview.com>).

### The Engineer's responsibilities and liabilities

Under the conditions of the contract with their employer, the engineer is responsible for the duties they undertake (designer, agent, supervisor, certifier, adjudicator). The engineer under FIDIC forms owes a duty of care also to the contractor in exercising their discretion in an impartial manner within the terms of the contract, and having regard to all circumstances. This duty of care exists alongside the other duties which may be imposed in tort under the governing law in order to avoid causing physical loss or damage or, in some cases, economic loss, with or without physical damage. The engineer may be responsible (and liable) for negligent design and supervision, negligent under-certification, negligent statements and instructions,



lack of cooperation, lack of prevention of damage, and so on. The engineer is also responsible against third parties. The potential liability and the form and extent of liability depend on the governing law (Bunni, 2005).

## 1.5 Further important aspects of construction projects

A construction project is a temporary configuration of processes – a temporary multi-organization. Every construction project will bring together large numbers of people in their joint efforts who are aware of the temporary nature of the project. Large numbers of professionals and specialists cooperate within every construction project.

Employers, designers and contractors are the most frequent, direct participants in construction projects. Large construction projects also have large numbers of employed people representing these direct participants. Each of them is an employee of an organization and, frequently, a member of a professional association with different interests, roles and priorities. It is therefore important to set up an efficient method of management and organization within a particular project to help create a common synergy for construction project success. It is equally important to establish a certain positive social atmosphere to help overcome problems that accompany every construction project.

A typical yet important issue that often arises is a change in the function of the engineer, contractor or employer's representatives over the course of the project. The removal or replacement of a vital project management position can cause confusion and lead to technical complications, contract price increases and delays.

Representatives of construction project participants have various levels of knowledge, different specializations and varying interests. As a result, the competency and authority of these parties may be unclear. When things go wrong, it is not unusual for some people to avoid responsibility completely and for others to unfairly get the blame. It is extremely difficult to harmonize the interests of all participants.

It must be remembered that the duty to deliver value for money, quality and timeliness prevails over individual interests.

### 1.5.1 Overlap of construction project phases

Three phases of a construction project can be distinguished: preparation, design and realization. The operating phase, if any, can be seen as a part of the realization of the project. Often intentionally or inevitably, these phases overlap with each other. The overlap of the design and realization phases may appear in cases of Design-Build Projects (see Chapter 3). This may speed up construction or make it more effective where a variation in, or clarification of, the design becomes necessary during realization. Variation Management (or Change Management) is a key aspect of project management in construction and a contract must be the main instrument used to define respective procedures.



### 1.5.2 Admissibility of variations and the need for variation management

The emergence of unforeseen events in construction projects is inevitable. It can almost be guaranteed that a large construction project will deviate from the employer's, designer's or contractor's original vision. The ability to foresee such modifications in the contract and provide respective solutions from the outset is critical to avoiding disputes. Good contracts envisage this and therefore contain variation clauses and procedures (see Chapter 8).

Obviously, variations administered on the basis of a variation clause cannot imply breach of contract, as it is the contract which enables variation. When used in a contract, the variation procedures include, for example, the way to propose the variation, a form of instruction to vary, periods, pricing method and sample variation orders.

## 1.6 Typical contractual relationships

Typical contractual relationships among direct construction project participants are mainly expressed in contracts for works, contracts for purchases and professional service agreements.

The fundamental risk allocation and delivery method must be stipulated in a contract between the employer and main contractor. This is the 'main contract'. Other contracts arise within the delivery chains. A joint venture agreement is also common and important in practice.

Further contractual relationships arise in connection with insurance (see Chapter 14) and securities (see Chapter 16).

## 1.7 Motivation for international business

The construction industry and construction projects were, traditionally, local by nature. Construction contractors and their employers were typically limited to businesses/projects in their geographical area. These days, by contrast, the construction industry is witnessing globalization. Integrated processes, newly emerging supranational formations, government programs supporting investment, the expansion and development of means of communication, social networks, increased mobility of goods, capital and labour, have all had a major impact on the construction industry.

The fall of socialism and the consequent liberalization in the 1980s in Eastern Europe and Russia led to a relaxation of the formerly protective policies in many countries. The end of central planning created new opportunities for construction companies from First World countries in the West where the infrastructure was already well developed.

Preconditions for international construction business expansion can include any of the following: implementation of clear and open international rules of commerce,



foreign investment incentives, availability of credit, trade agreements, contract law modification, development of alternative dispute resolution, international treaties on investment protection, enforceability of arbitration awards and protection of new technologies under intellectual property laws – particularly in terms of EPC contractors in oil, gas and energy projects.

Global companies are using their know-how, synergy and financial strength to expand their business. In numerous developing and Third World countries, foreign companies have acquired state-owned companies or entered into joint ventures with local private companies.

Contrasting examples of international projects in a globalized world can include a small warehouse for an international vendor, a complex strategic energy project with the involvement of several countries as employers or an international joint venture as a contractor under different applicable laws and rules of dispute resolution. The element of internationality can mainly be found in the place where the project is implemented, in the parties to the contract, in the procurement and contracting procedure and in the technical and legal standards.

Cross-border projects foster competition, but also put pressure on employers to properly manage international tenders in terms of how to engineer, procure, construct and supervise work. In the case of public tenders, an employer must, first of all, be able to ensure proper preparation of the project. In particular, to provide funding, obtain building permits and provide access to the site including archaeological surveys and settlements with utility owners and land owners. Local laws must be ready for international construction projects, mainly in terms of public procurement, construction law, environmental protection, technical and quality-related standards, commercial contractual relationships, dispute resolution and competition law. The employer must provide appropriate design documentation and technical specifications. Most importantly, the employer must provide the people well qualified enough to act as their competent representatives/agents in the other country. Last but not least, the employer must select an appropriate delivery method (see Chapter 3). The risks that result from shortcomings in the mentioned domains complicate financing, tender procedures and sometimes can even jeopardize the implementation of a particular construction project.

The above-mentioned risks will obviously prolong the realization and increase the cost of construction projects. Therefore, the international construction business is very demanding for construction companies that want to conduct their ventures abroad. By the same token, local companies are challenged by international competition. Ventures abroad increase demands on the employees of both local and international contractors. Recruiting and educating these employees form one of the most demanding missions of an international construction contractor.

The primary motivation of a contractor for an international venture is either 'offensive' or 'defensive'. Here, the 'attack' is to be perceived as a proactive, strategic decision ensuring another business opportunity to sustain growth and the 'defence' is to be perceived as a response to a lack of work and opportunity in the country of origin.

An interesting case study of a unique international project was presented at the 2012 International Engineering and Infrastructure Congress (Scott, 2014). Fredric S. Berger, the chairman of the Louis Berger Group, Inc. shared with the attendees his



firm's experience in carrying out a US\$250 million project in 2003 to reconstruct 384 km of roadways and bridges in Afghanistan from Kabul to Kandahar. The firm was given an eight-month deadline and the work had to be carried out while military operations were proceeding. 'We had a war going on,' he explains in summarizing his remarks at the conference:

We were working on a road that served 30% of the population but we could not enter because it was in the most heavily land-mined country in the world and had been destroyed by war for over thirty years. So there was no construction machinery, no construction industry, no construction workers, and no construction materials. We not only had to resolve the question of how to get equipment, workers, and materials into the country fast enough [to complete the project on time] but we all had to do that in the context of a threat-prone environment.

Berger says that, after the landmines had been removed from the roads and rock quarries, all of the contractors brought equipment in from outside the country. In some cases it was flown in, and in others it was brought in by road from Pakistan. Berger had to get a special waiver from President Bush for the contractors in Turkey to bring their equipment through Iran. 'We had to modify the standard FIDIC contract,' says Berger.

We were in a war environment, and we could not allow the contractors to exercise the *force majeure* clauses and shut down their projects. So we pre-negotiated stand-down daily rates so that if there was an incident in their area we could tell them to go inside the camp and lock the gate. So we paid them a fixed rate per day; it was pre-negotiated rather than let the project be shut down.

## 1.8 Managerial analyses

In the international construction business, careful risk analysis is of the utmost importance. In general, there are two basic levels of risk analysis: (1) the analysis of a particular target market; and (2) the analysis of a particular construction project. Many various management techniques and formulas are used in conducting market analyses. To evaluate the external environment in terms of political, economic, social, technological, environmental and legal factors and their influences, the PESTEL analysis is often used.

- Tax policy, labour legislation, environmental legislation, restrictions on trade, customs and political stability reflect how and to what extent the government intervenes in the economy are among the political factors.
- Economic growth, interest rates, exchange rates, inflation rates and GDP are ranked among the economic factors.
- Social factors comprise cultural aspects such as health care awareness, age structures, the demographics of an ageing population, the value of human life and emphasis on safety.



- Technological factors include technological aspects such as research and development, automation, levels of innovation, technological stimuli and the rate at which the technological changes occur.
- Environmental factors are the ecological and environmental aspects (weather, climate, climate change) that may have a major impact on industries such as tourism, agriculture, insurance and, of course, the construction industry.
- Legal factors concern consumer rights, competition law, labour legislation, health and safety and commercial law.

Strategic capacities are often explored by means of the SWOT analysis. They are, in particular, resources (i.e. what we have) the competencies (i.e. what we are good at). SWOT stands for *Strengths, Weaknesses, Opportunities* and *Threats*. The questions, therefore, are:

- What are our strengths?
- How can they be exploited?
- How can the impacts of our weaknesses be minimized?
- What are our opportunities?
- How they can be used?
- What are the threats preventing us from making use of these opportunities?
- How can these threats be overcome?

For these reasons, careful analysis and investigation of the internal and external environment are required.

Another popular analysis is the *Porter's Five Forces Analysis*. This can assist in setting up a business analysis framework. The Porter's Five Forces Model defines the forces that determine the level of competition in an industry and, therefore, its attractiveness.

Porter defined two vertical forces – the power of suppliers and employers, along with three horizontal forces – the threat of new competitors in the market, the threat of substitutes, and the threat of established competitors. Having analysed the external and internal environments, one has to assess the influences on product or business plans and draw up a strategy.

## 1.9 Hazards and risks

Large construction projects are regularly exposed to numerous hazards. Construction project participants (mainly the employer and the bidding contractor) should identify potential hazards and carry out a systematic risk analysis to assess the respective risks of a particular project properly. Lenders (such as banks) and insurance and re-insurance companies often require a risk analysis before providing loans or insurance. Every contract must contain instruments to cope with foreseeable hazards and risks. A risk can be defined as the probable value of damage caused by the realization of a hazard.



Concerning risk, it is not the contractor's objective to avoid it completely, but to identify and be able to mitigate it in order to achieve a competitive advantage. Three main phases can be distinguished in respect of handling risk:

- hazard identification
- risk analysis
- anti-risk measures.

### 1.10 Hazard identification

Risk, in principle, is not a bad thing. Naturally, people tend to seek certainty by avoiding change and risk. One can even benefit from risk if one is not afraid of it. In construction, the aim must be to avoid risk and adverse consequences by systematically identifying, analysing and taking action.

Individual hazards and associated risks may have different levels of importance in particular projects and must be considered from the point of view of the employer's and the contractor's priorities. In some projects, price will be seen as a priority, in others the time for completion or the highest standard of performance.

A construction project – like any other industrial or non-industrial project – faces external hazards, internal hazards and mixed hazards. A hazard of external origin can be defined as a hazard arising from the natural technical, economic and social environments in which the project takes place, for example, poor cash flows, religious unrest, floods, aircraft crashes and unstable currency exchange rates.

A hazard of internal origin, on the other hand, arises from the project itself and includes hazards that threaten the project directly and indirectly. Examples of direct internal hazards include embezzlement, delays, decision-making faults and errors. Indirect internal hazards are those that jeopardize the project in a secondary way and may involve external third parties, for example, disputes with authorities on matters of environmental pollution and activism by environmentalists. The latter may result in disruption through protests or even court-ordered injunctions.

A mixed hazard is one which arises when project management erroneously or inappropriately responds to an external hazard.

Hazards threatening a construction project can be further broken down into two broad groups:

- *anthropogenic hazards* – caused by people in various forms (individuals, groups of individuals, an organization, and the like);
- *natural hazards* – caused by natural elements (storms, earthquakes, black ice, and other natural disasters).

### 1.11 Risk analysis

Identification of hazards is followed by risk analysis in which the probability of adverse consequences (frequency of occurrences, implications, and the like)



are evaluated and lead to a decision regarding the selection of appropriate risk management strategies.

## 1.12 Anti-risk measures

Measures to be taken to reduce or eliminate risk depend on the decision-maker's financial and human resources as well as on the feasibility and availability of respective measures. Some risks cannot be prevented at all.

In general, in risk analysis, four strategies can be distinguished, called the '4 Ts':

- Take
- Treat
- Transfer
- Terminate.

### 1.12.1 Take

A risk management strategy which relies on the willful absence of any precautions and involves accepting the loss (or benefit of gain), from a risk when it occurs. This is a viable strategy where potential risks are small or where the cost of insuring against the risks would be greater over time than any potential losses sustained. The same can be said for risks that are so large that they are either uninsurable or the premiums are unfeasibly high. A solid budget contingency is the only possible way to secure against this kind of risk.

### 1.12.2 Treat

This risk management strategy is based on risk prevention and allocation. This strategy follows the principle of 'prevention being better than cure' and adopts both proactive or reactive approaches. The first rule gives preference to proactive management which is focused on avoiding hazards so that they are not realized. Complete prevention may not always be feasible so, in this case, hazards need to be effectively mitigated. The realization of a hazard or a risk will always adversely impact upon the project as it may increase prices, cause delay or disruption and potentially affect output quality. A reactive approach can be taken where proactive management is impossible. In this case, it is necessary to adequately prepare for the realization of potential hazards to mitigate potential, adverse consequences.

Good contracts push the construction project participants towards proactive approaches. This can be implemented through contractual duties such as early warning obligations (i.e. timely notification of events which will have an effect on time or price) and obligations to prevent and mitigate damage.

The treatment of risk also involves an efficient allocation of risk between the project participants. Two principles can be distinguished here. This first is the centralization principle where risk is borne by a single party and, second, the decentralization principle where risk is borne by the party most able to manage it efficiently.





### 1.12.3 Transfer

Risk is transferred to a third party against payment, usually in the form of insurance. In fact, the risk always stays with the project participant and the insurer provides an agreed indemnity. Risk may also be shared, such as with a partner in a consortium or joint venture.

### 1.12.4 Terminate

It is easy to refuse a project because of a potential pending hazard, but 'he who doesn't risk never gets to drink champagne'.

## 1.13 Typical hazards in the international construction business

When trying to expand its business abroad, a contractor mainly considers the following areas and issues:

- the political situation or stability of the country and related trend prognoses;
- business-related legislative conditions, opportunities in the market;
- international treaties (e.g., on investment protection), bilateral conventions, diplomatic missions, membership of FIDIC;
- employment of foreign labour (or sending the labour abroad), the taxation, social security and health insurance payments and other accounting requirements that would follow;
- legislative conditions under which local labour can be employed, the wage and social conditions, protection of health and safety and visas;
- labour union requirements;
- availability and cost of local lawyers and other counsels;
- public procurement procedures and qualification criteria;
- customs duties, taxes and fees;
- forms and conditions for doing business in a particular market in respect of foreign entities;
- standard forms of contracts and related restrictions, if any, imposed by mandatory law;
- the enforceability of laws, local litigation, local arbitration and the enforceability of their awards;
- building permit proceedings, the functions of local building authorities and their control;
- the specifics of the governing law;
- the level of endemic corruption;
- technical standards and their sources, certifications and licences;
- the largest private and public employers and the financial institutions and their particulars;
- delivery methods of choice;
- the relationships between employers and contractors;



- the availability of technologies, equipment, labour and materials;
- the main players in the construction market and their strengths, contractors/suppliers and their references and strengths, a list of suppliers of key materials (steel, concrete, aggregate, sand, cement), power and other utility services;
- passing on of market experience, maturity of business relationships, reliability and availability of local business partners;
- reliability of internet browsers, and electronic sources of information;
- the currency in which the work, materials, plants and equipment are to be paid;
- insurance availability and requirements;
- availability and requirements of securities (bank guarantees, bonds, suretyships);
- import restrictions, restrictions applicable to foreign companies and subsidies.

### 1.14 Risk allocation in contracts

As previously mentioned, risk management may take the form of a contractual risk allocation between the project participants. In practice, an inefficient allocation (of an unclear risk or of a risk that the party is not able to control) will result in speculative claims, disputes, or even contractor bankruptcy. Furthermore, a contractor will allow for risk in their bid price via a 'risk surcharge'. The employer pays for the transfer of risk in such a situation.

Standard forms such as the FIDIC conditions of contract will guarantee a balanced and efficient risk allocation, provided they are not significantly altered. Such standard forms are commonly prepared by professional organizations or representatives of various interest groups such as contractors, lenders, employers, consulting engineers, etc. to achieve well-balanced risk allocation.

It is worth mentioning here that common law practitioners seek to exhaustively list and describe all risks in the contract. Civil law practitioners rely on civil codes. Lawyers in the Anglo-Saxon jurisdictions may then be surprised by the fact that the governing law can influence contractual risk allocation. Similarly, judges in the common law world respect contractual risk allocation more so than their learned colleagues from continental Europe.

#### **Wrong forms of contract by James Bremen (UK)**

Many state entities either have their own (usually common law-based) historic form of bespoke construction document, or prepare their own set of amendments to a standard form (e.g. FIDIC or NEC). Whether or not a bespoke form (or amended standard) is used, there are a number of recurrent problems which plague projects in the emerging markets:

- Where the contract has not been adapted for the location and governing law of the project, many of its provisions will either not operate or provide a basis for claims and disputes into the build-phase.
- Often sponsors use the wrong form of contract (e.g. a lump-sum turnkey form, where the appropriate form may be construct-only or design and build).



- Insufficient analysis carried out of project-specific risks, with the result that risks are often inefficiently allocated to the contractor where the employer ought to carry them, as they are in the best position to manage them. This rarely addresses the risks, and ultimately results in a claim by the contractor.
- Because different departments often prepare the forms of contract and technical schedules, there are very often significant inconsistencies in these documents which are the basis of contractor claims.

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## 1.15 Form of business organization

### 1.15.1 Representative office and domestic or foreign subsidiary

In general, there are two ways of doing non-collaborative business abroad. This can be done through a representative office based abroad or via a domestic or foreign subsidiary. Selecting the appropriate business form for a particular country or for a particular construction project is one of the keys to success.

The right to do business will usually be granted on completion of an entry in the local business register. The cost and time demands in connection with setting up a representative office or a subsidiary will vary depending on the target market.

Both forms of doing business abroad have to be chosen with the social-political situation, tax considerations, financial planning, commercial objectives and priorities, risk management and business-related legislative conditions in mind.

The major difference between both forms is in the legal status and responsibility. A representative office is not a separate legal entity – it is merely a tool to prolong the company's reach. As a result, any contract-related liabilities or even damages can still be borne by the company itself. A brand-new, independent legal entity, on the contrary, will arise if a subsidiary (sometimes also called a 'daughter company') is founded. The reasons for creating a subsidiary to operate in a foreign country usually centre on tax and liability concerns. However, subsidiaries with limited liability may experience difficulties in obtaining credit, insurance, securities, etc.

### 1.15.2 The consortium and the joint venture in construction

Consortiums and joint ventures are collaborative forms of business organizations. In construction, it is not always clear what the factual and legal meanings of these



particular terms are. Both of these business forms are commonly used in joint construction projects by contractors. In practice, the contractors usually unite for large construction projects because the nature and demands of such projects are beyond the capacity of an individual contractor. A single contractor is sometimes unable to meet the qualification criteria for the project or is lacking the resources as they are engaged in other projects. Take, for example, the construction of a railway corridor – such a project will require the cooperation of companies specializing in landscaping, traction power lines and design.

Another reason is the need for strategic partnerships in international business. A local partner is often indispensable whenever a new market is entered, as they already have established relationships with the employer, designer or contract administrator, have experience with local subcontractors, suppliers and unions, and are familiar with local business rules and practices. The formation of an association is also a way to deal with risk and to improve marketability and credibility. Risks are divided between the parties and the specialist skills on offer collectively strengthen the bid.

As in life, the biggest challenge is to find a reliable partner for a particular collaboration. Therefore, it is important that a contractor learns as much as possible about their potential partner. In particular, their financial status and good references. After such a 'due diligence' check has been completed, a contract can be signed and a successful partnership developed.

Employers often require bidders to enter into collaborative forms of business organizations so that they are jointly and severally responsible for the fulfilment of their obligations under the contract with the employer. Having become part of such a venture, each of the participants must be prepared to deal with the issue of becoming solely liable for the other participants' obligations should the latter collapse (e.g. due to insolvency).

In practice, potential contractors join forces at the tender stage, though there is nothing to prevent such a joint venture from being created during the construction phase. In the latter case, such a joint venture is internal in its nature and therefore excludes any joint and several liability to the employer.

The governing law, its respective limitations and accepted forms of association should always be evaluated whenever a consortium or a joint venture is to be established. Contractors must take into consideration any statutory requirements and the mandatory provisions of a particular applicable law. For example, they must consider if it is necessary to conclude the respective contract in writing, how to determine the governing law in the absence of a selected jurisdiction, when exactly the consortium or joint venture is to be founded, etc.

It is the responsibility of the contractors and their actual priorities in particular projects to determine what kind of 'form' of cooperation they choose. Consortia are easier to create and require fewer resources and commitments than joint ventures.

### 1.15.3 The consortium

A consortium is the most widely used association by contractors to join their efforts in construction projects. A consortium consists of two or more contractors uniting



to set up an association of independent contractors. A consortium is not a legal entity, bids are jointly submitted and the parties are jointly and severally liable for work performed under the contract. Commonly, consortium members perform the works separately as they distribute the particular parts of the work between themselves. Moreover, the consortium's losses and profits are borne separately by the particular members. Right from the bidding phase, the project is usually subdivided into a number of parts that are then priced and executed independently by the members of the consortium. Not being a legal entity, the consortium is represented in dealings with the employer and third parties by a leading participant who also, as rule, prepares invoices for the employer (being paid to the common account) and distributes the received payments to other participants afterwards.

At the top management level, the consortium is usually managed by a board consisting mainly of the participants' executive directors. The board can resolve disputes and give instruction to the consortium's 'on site' administrative body which coordinates design, construction, accounting and engineering. The administrative body acts on the consortium's behalf, communicating on a daily basis with the employer's representatives or the contract administrator.

Relationships between the members of a consortium can take other forms. The works, for example, may be carried out separately with one shared profit and loss account, the balance of which is then distributed among the venture participants once the project is completed (perhaps on a pro rata basis), depending on the individual participants' share in the project.

A further example of a different kind of consortium is the 'tacit association' or *Beihilfegemeinschaft* in Germany. Such a 'silent association' comes into being where a contractor executes part of the works through a third party under the consortium contract but not via a subcontract. Despite being associated with the contractor, such a third party is not a party to the contract entered into with the employer (the main contract). This form is particularly useful where a part of the works necessitates the close cooperation of human resources, special equipment, technology, copyrights and know-how and where the contract for works cannot adequately regulate such part of the project.

Consortium agreements may contain various rights and obligations ranging from loose to strict forms of contractual relationships. It is common for the consortium agreement to deal with matters such as the purpose of the consortium, mutual rights and responsibilities, joint and several responsibility to the employer, bid evaluation, representation, decision-making, management, duration, account and payments, profit and loss distribution, insurance, bonds and guarantees, insolvency, termination, etc. Consortiums are often regulated by statute in civil law countries as they are recognized forms of business cooperation. This factor must be taken in consideration when negotiating or preparing a contract. In Poland, for example, a consortium can be created by a verbal agreement with the consequence of joint and several liability imposed by statute.

#### 1.15.4 The joint venture

Joint ventures are more complex than consortiums. They exist as distinct legal entities – often with their own employees and objectives as well as financial, tax and





legal issues to deal with. Joint ventures differ among jurisdictions and the actual form will depend on the requirements of particular contractors.

There also exist associations known as equity joint ventures (EJVs). In this case, a joint venture or partnership of a domestic and foreign entity operates under the umbrella of a limited liability company. In China, an EJV is a limited liability entity established by a Foreign Investment Entity and Chinese investors. Under Chinese law, all foreign business activity in China must be conducted in this way. In the UK, the principal types of joint ventures are contractual joint ventures, general partnerships, consortium companies, limited liability companies and hybrid companies. A consortium company, where each partner takes an agreed percentage of the issued share capital, is probably the most common form of joint venture in the UK (Venoit, 2009).

If there is no mandatory regulation prescribing the use of the EJV there can be a strategic interest in creating an EJV where business priorities include long-term business relationships, risk and liability limitation, tax and other practical issues.

### ARGE

The *Arbeitsgemeinschaft* (ARGE) is a specific form of joint venture in Germany. Issued by the *Hauptverband der Deutschen Bauindustrie* (the German Construction Industry Association), it stands apart from other European jurisdictions by unifying sample forms of joint venture contracts in law.

Unlike the consortium, the ARGE is a legal entity (a *Gesellschaft des bürgerlichen Rechts* ('civil rights company')) whose characteristics are defined by the *German Civil Code* (BGB). The ARGE is independent from its shareholders, can sue or be sued and can act independently of its joint venture partners. In contrast to a common consortium whose participants perform the work separately, the ARGE participants execute the works as individual contractors, with the profits distributed and losses to be borne on a pro rata basis, depending on their shares in the ARGE. As an independent legal entity and a daughter company of its participants, the ARGE enters into the main contract with the employer.

At the bidding phase of a project, the future participants in the ARGE will first enter into the *Bietergemeinschaftsvertrag* ('contract on joint bid submission'). Sample forms of this contract are unified in law as well as in the wording of future ARGE contracts. The *Bietergemeinschaft* will turn into ARGE only when the contract is awarded. Otherwise, the *Bietergemeinschaft* lapses and does not give rise to ARGE.

An ARGE foundation agreement is valid when made orally but has to be concluded in writing for practical reasons. Partners may freely depart from the provisions of the BGB except in two specific cases. Case 1: no participant shall acquire a controlling stake in ARGE (be in control of it). Case 2: no participant shall be deprived of the option to leave ARGE.

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