TURNKEY CONTRACTS CONCEPT, LIABILITIES, CLAIMS*

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1. THE CONCEPT AND ITS PRACTICAL APPLICATIONS

1.1 Origin of the term and definitions

The term turnkey is not new and not particular to international contracts. However, in the area of international construction contracts, it has acquired a particular importance. The term seems to have originated in the building and in the oil and gas industries in the United States from where it spread to other industries and to international transactions. In the U.K., domestic construction contracts, the related case law and legal writing rarely seem to employ the term turnkey, nor for that matter the underlying concept.

As a consequence of the relatively recent origin of the term and its extension to a variety of contractual relations, "uncertainty [. . .] prevails in practice regarding the very definition of the turnkey contract" (ECE, *Guide*, p. 15). The term is used more or less synonymously with such expressions as "package contract", "design and build", "single responsibility", "design constructor". In French one uses the expressions "*clé en mains*" or "*ensemblier*" and in German one finds the terms "*schlusselfertig*", "*Totalunternehmer*" and "*Objektvertrag*".

According to the most widely accepted definition, a turnkey contract is one "under which the contractor is responsible for both design and construction of a facility" (A.I.D. Handbook 11, pp. 2–19; for further references see Schneider, p. 310, n. 98). However, occasionally one finds the term used also for other types of arrangements—for instance, for the construction of a complete facility according to drawings and specifications prepared prior to the conclusion of the contract. This article deals primarily with design and build contracts, but does not altogether exclude certain aspects of such other contractual arrangements.

1.2 Components of a turnkey contract

As previously defined, a turnkey contract requires the *design* of the facility by

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the contractor. This does not exclude that certain aspects of the design are already defined in the contract or that the preparation of the design forms the object of a separate, preliminary contract. In any event, even where the contract is only for the construction of the facility, the contractor normally has to prepare the detailed design.

The *technology component*, i.e., patents, know-how, etc., in so far as it concerns the completed works, can be seen as incorporated already in the design. However, in certain cases the contractor uses the technology of third parties by virtue either of his own contractual arrangements or as requested by the employer or his engineer.

Supplies, construction and erection form part of the contractor's obligations. Even in the most restrictive definition of a turnkey contract, the contractor owes the construction of the complete facility ready to be operated. Nevertheless, it is not infrequent for the employer to require from the contractor that he retains specified *subcontractors* or to limit the choice to certain *suppliers*. In this manner the employer may wish to assure himself of the quality of certain components or negotiate directly the price of certain subcontractors. This approach has been developed furthest in England by the system of "*nominated subcontractors*". Where the employer is a public body it frequently requires that preference be given to local suppliers and subcontractors. This is often the case in developing countries, and the procurement regulations of international lending organisations, such as the World Bank, authorise this practice by accepting a margin of domestic and regional preferences (Guidelines for Procurement under IBRD Loans and IDA Credits, section 2.55). In spite of international agreements in GATT and elsewhere, industrialised countries, too, often require in an open or covert manner preferences for local suppliers or subcontractors.

Apart from certain OPEC member countries during the golden days of the oil boom, purchasers of turnkey facilities normally require from the contractor at least some assistance in *financing* the project, if not a complete financing package. This may range from deferred payments to the arrangement for buyer's credit or even a share in the equity of the company operating the completed facility.

It is normal for the supplier of any sort of equipment to familiarise the purchaser's personnel with the operation and maintenance of this equipment. In the case of clients in developing countries the contractor's obligations in this respect normally go much further and often include complete *training* programmes.

It has become increasingly frequent for purchasers of industrial facilities and occasionally even of employers for the construction of civil engineering or building works to require from the contractor some involvement *beyond the completion* of the works. This involvement may take the form of long-term arrangements for maintenance and repair services but occasionally goes further. In East–West contracts, for instance, contractors for some time already have been shouldered with various types of responsibility for the

marketing of the products from the plant constructed. To an increasing degree clients from developing countries also make some requirements to this effect. In addition, these countries often seek from the contractor assistance in, and sometimes complete responsibility for, the *operation* of the completed facility, whether the facility be a hospital, a fertiliser plant or port installations.

1.3 Contractual arrangements

In view of the variations in these possible components, the contractual arrangements for a turnkey contract may take a variety of forms.

As explained above, a turnkey contract, in the generally accepted sense of the term, provides for design and construction under the *single responsibility* of the contractor, or occasionally complete construction alone.

Where the contractor assumes responsibilities for the operation he may conclude a "*produit en main*" contract. Arrangements of this type have first been developed by Algerian State enterprises. They provide that the guarantees for the performance of the plant assumed by the contractor have to be met not only at the completion of construction and commissioning of the plant, but also at a later date when the plant is operated with the purchaser's own personnel trained by the contractor. For some time this concept was widely discussed in international circles. It seems to have been applied in a few cases only. In at least one of these cases the results were disastrous for the contractor. Since then the concept seems to have lost much of its attractiveness for purchasers in developing countries for two reasons at least: on the one hand, the contracts now provide for clear limits for the contractor's risk with respect to the result of training and management and thereby considerably reduce the value of the performance guarantee for the purchaser. On the other hand, by placing the principal responsibility for the management of the plant on the contractor, the system reduces the learning effect for the purchaser's personnel and thereby hinders the transfer of technology.

Purchasers in developing countries, to an increasing degree, require that the contractor take a *share in the equity* of the company established to operate the facility. These purchasers expect that such participation increases the contractor's commitment to the success of the venture, both at the construction and at the subsequent operation stage. The participation also plays a role in setting up the financing arrangements, although the contractor's equity share usually amounts only to a small fraction of the total project costs. Many of the difficult problems which arise in this context can be seen quite clearly in the recent arbitration between the Government of Cameroon and Klöckner Industrie-Anlagen GmbH in the framework of ICSID, the World Bank arbitration centre.

When the contractor accepts to be paid in products of the plant or by other products available to the purchaser, a number of complex problems arise which have been dealt with elsewhere.

1.4 Contract forms

The only international model form for turnkey contracts known to me is that prepared by UNIDO for the construction of a fertiliser plant.

Apart from some domestic forms (such as the J.C.T. Standard Form with Contractor's Design or the A.B.T. 74 Conditions) all other forms currently in international use are not made specifically for turnkey contracts. This is the case in particular for the F.I.D.I.C.–F.I.E.C. Civil Engineering Form, the F.I.D.I.C. Form for Electrical and Mechanical Works and for the General Conditions prepared by the United Nations Economic Commission for Europe (188 and 574 Series). Nevertheless one finds these forms occasionally used in international turnkey contracts. This can cause major difficulties in practice. One may well imagine the complications which arise if one applies to a contract for works designed by the contractor a contract form which—as is the case with the F.I.D.I.C./F.I.E.C. Civil Conditions—presumes that the works have been designed by the Engineer and are paid according to measured quantities.

Consequently any of these forms have to be carefully reviewed and adapted before they can be used appropriately for a turnkey contract.

2. APPLICABLE LAW

Turnkey contracts often seek to regulate in great detail all issues which possibly might arise between the parties. Thus it could appear of secondary importance to determine the applicable law. Nevertheless the issue is important, on the one hand because of rules of public policy which remain unaffected by contractual provisions and on the other hand in all those situations where the contract is incomplete or contradictory.

When considering the "applicable law" in the context of turnkey contracts, four different types of legal rules have to be distinguished.

2.1 The law governing the contract

This law determines the contractual rights and obligations of the parties, the interpretation of the contract and, subject to some reservations, its formation and validity.

The principle of party autonomy recognised for most types of contracts also applies to turnkey contracts. Consequently the parties are free to choose the law governing their contractual obligations, subject to certain restrictions resulting from rules of public policy. Such rules of public policy may relate to certain subject matters of the contract (e.g., intellectual property rights) or to certain aspects of the transaction (e.g., rules on interest and rates,

competition and antitrust, etc.). Where the parties, by their choice of law, seek to exclude the application of such public policy rules, the choice may not be upheld. Whether this is the case or not depends on the rules of conflict of laws applied by the institution intervening for the settlement of disputes, i.e., the courts or arbitrators.

Where the parties have failed to agree on the law applicable to the contract this law has to be determined by reference to conflict rules. Lawyers not specialised in private international law often seem to believe that the contract is governed automatically by the law applicable in the country of the purchaser. This is not necessarily the case.

In fact the criteria for determining the law applicable to a contract differ considerably from one system of conflicts to another. The criterion most frequently referred to is probably that of the characteristic obligation. But the various conflict systems which rely on this criterion differ in its application; some systems apply the law at the seat or residence of the party which owes the characteristic obligation, others refer to the place where this obligation is performed. One also finds application of such other concepts as that of the proper law of the contract as a bundle of criteria, reference to the place where the contract has been entered into or direct application of the place of performance. Where one of the contracting parties is a government body, the law of that State may be applicable as provided, for instance, in Article 42 of the Washington Convention (together with rules of international law which may be applicable).

Conflict rules may provide that one legal system is applied to all aspects of the contract or they may distinguish according to the type of obligation. Thus the conflict rules may determine separately, and possibly with different results, the rules applicable to the design, the construction, the management, the payment and other obligations.

Where the conflict rules designate only one legal system for the entire contract, it may be necessary to characterise the turnkey contract. Under most systems it can be expected that this contract will be characterised as one for work or services. However, a different characterisation, and in particular characterisation as sales contract, cannot be excluded and in some cases has in fact been proposed.

Under these circumstances it is far from certain that a court or an arbitration tribunal to which a dispute is submitted will automatically apply to the contract the law applicable in the purchaser's country. The contractor may have serious arguments in favour of the application of his own law—although it is not certain that this law will always be more favourable to his case.

In view of this uncertainty, some negotiators for contractors prefer to leave the issue unresolved in the contract rather than provoking, at the time of the contract negotiations, an argument on this issue which is likely to raise susceptibilities, especially where the contracting party is a government or a public body.

2.2 Laws, regulations and standards defining the works

Reference to this type of rules is often found in the specifications. The standards to which contracts refer may be national—the ones most frequently applied are those of the U.S., Great Britain, France and Germany. Increasingly one finds references to standards of international bodies and in particular of the International Standards Organisation, ISO. Sometimes several standards are declared applicable cumulatively or alternatively. In other cases the various parts of the specifications refer to different standards. It is essential to verify that the standards required in the contract in fact do exist for the materials, equipment and work which they are to define and that this definition is appropriate for the purpose.

Apart from reference to national standards, the contract normally requires that the works have to comply with applicable local regulations in such matters as building standards, safety, environment, etc.

These laws and regulations, just as the standards required in the specifications, define the quality of the works and thereby the contractor's obligations. How are these obligations affected when changes occur subsequent to the conclusion of the contract?

Where the contract refers to foreign standards, their application results from a contract provision only. Consequently, it may be argued that the contractor's obligations are defined by the standards as they exist at the time of contracting. Unless the contract expressly provides to the contrary, subsequent modifications in these standards need not be given effect in the works. The contractor then may claim additional payments if the employer or his engineer require him to observe modifications in the standards causing additional costs.

Where a change occurs in the laws and regulations applicable in the employer's country, one might think that the situation is different, since such laws and obligations have to be observed irrespective of the intention of the parties. However, it has to be borne in mind that the laws and regulations considered here are only those which define the quality of the works. In most cases they become relevant once the owner wishes to occupy the facility and to start operating it. Frequently they are necessary for obtaining permits and licences required for such occupancy and operation and these permits and licences normally have to be sought by the owner.

It follows that in most cases the contractor may proceed with the construction of the works without being affected by the change in this type of laws and regulations. A modification in the works, in order to reflect the change in such laws and regulations, is necessary only so as to enable the employer to obtain the licence for operation. Consequently, it may be argued that changes in local laws and regulations affecting the quality of the works are to be treated in the same manner as changes in national or foreign standards referred to in the specifications. However, contracts sometimes require that the contractor takes the steps which can reasonably be expected

of him in order to make the works conform to modified regulatory requirements. Even in the absence of a contract provision, the contractor may have an implied duty to this effect. If this were not the case, the enterprise would be completely deprived of its purpose, since the employer could not operate the facility constructed. Such an express or implied duty of the contractor obviously also implies his right to payment for the modifications. The contractor's claim in this respect in essence is a variation claim.

2.3 Laws and regulations affecting the contractor's activity

The laws and regulations considered under this title are directly applicable to the contractor. They may relate to such matters as working hours, employment conditions and other aspects of labour relations, customs duties, traffic regulations, taxation and a host of other aspects. Sometimes the contract provides that the contractor has to observe these laws and regulations in the country where the works are performed; but such a provision is superfluous since the contractor has to observe these laws and regulations by the very fact of his activity in the country and irrespective of a contract provision to this effect.

In view of these circumstances it may be argued that any changes in these laws and regulations are not a contractual matter and do not entitle the contractor to any claim for additional costs. This conclusion can hardly be disputed where the change occurs in laws and regulations in the contractor's country. It may also be considered as justified with respect to changes in laws and regulations of third countries. The situation is somewhat different with respect to changes in the laws and regulations of the country where the works are performed, especially if the employer is the government or another public entity. Consequently, contracts sometimes provide that the contractor has a claim for reimbursement of additional costs due to such changes. Sometimes a contract clause to this effect is worded symmetrically and also allows the employer to recover from the contractor any cost-savings which such changes may have caused (see, e.g., clause 70 of the F.I.D.I.C./F.I.E.C. Civil Conditions).

While it appears fair and equitable that the contractor should have a claim for extra costs resulting from changes in these regulations, it may be difficult to justify such a claim in the absence of an express contract provision to this effect, especially where no link can be established between the employer and the author of the change in regulations. Consequently, it is quite important for the contractor to see to it that the right to this claim is reserved in the contract.

2.4 Law applicable to dispute settlement procedures

This law normally is the law of court or arbitration procedures at the place where the procedure takes place. It is determined independently. In

particular it can be the law of a country different from that whose law governs the contract itself.

The issue relates to the complex subject of dispute settlement procedures, which cannot be dealt with here.

3. THE PARTIES' RESPECTIVE OBLIGATIONS AND LIABILITIES

Since the contractor owes the supply of the complete installation, the allocation of responsibilities between the parties might appear simple and one might think that the purchaser's only obligation is to pay the price. In practice, the limits between the parties' respective obligations are less clearly drawn and on a number of occasions, responsibilities and liabilities may shift from one party to the other.

3.1 Design

In principle it is the contractor's responsibility that the design is complete, sufficient and adequate and assures that the facility meets the contractually required performance guarantees.

If one were to consider the design obligations as distinct from those of construction, the nature of these obligations and the question whether they have been performed properly might have to be determined independently of the quality and performance of the finally constructed plant. This approach, which has been argued occasionally, would imply that the contractor has an obligation only for best professional efforts and not for the guaranteed results of the installation. It would also imply that approval of the design by the purchaser reduces the contractor's subsequent obligations to that of constructing an installation which corresponds to the design. In my opinion it is unlikely that this approach will be upheld by courts or arbitration tribunals. The contractor's design obligation forms part of his general obligation to supply an installation which meets the required performance guarantees.

The situation is somewhat different where the purchaser requires changes in design. In ordinary building or civil engineering contracts, design instructions from the employer, his architect or engineer normally exonerate the contractor from liability for resulting defects except to the extent to which the applicable law stipulates a duty to warn. It appears to me that in turnkey contracts such exoneration cannot be admitted as easily even where the applicable law does not expressly provide for a duty to warn. The contractor has undertaken to supply works which meet the contract specifications and the performance guarantees. If he wishes to rely on design instructions by the employer as an exonerating cause, such an exoneration must be agreed by the

parties. It is submitted that the contractor can rely on an implied agreement only in so far as he pointed out the specific risks resulting from the design instructions and the employer nevertheless insisted on these instructions.

3.2 Suppliers and subcontractors

The contractor in principle is fully liable to the purchaser for the proper performance also of those of his obligations for which he retains subcontractors and suppliers. Contracts occasionally provide that guarantees and warranties of subcontractors and suppliers have to be passed on to the purchaser. Does this imply that the contractor's guarantees are limited to those passed on from his suppliers and subcontractors? It is submitted that this transfer of guarantees is intended as an additional security for the purchaser. It cannot be presumed that such an assignment of guarantees is intended to limit the contractor's own guarantees—unless this is stated expressly in the contract.

A shift in liability may occur in case of nominated suppliers and subcontractors, i.e., those chosen by the purchaser and imposed upon the contractor. For the reasons explained in the context of employer's design instructions, it can be admitted that the contractor has an obligation to indicate to the purchaser risks due to the products or methods thus imposed by the purchaser to the extent to which the contractor's professional experience enables him or should enable him to foresee these risks. It is submitted that beyond such a duty to warn, the contractor should have no liability for the choice of the subcontractors and suppliers thus nominated but should be responsible only for the proper supervision of the execution by them. Nevertheless it is not infrequent that contracts provide for a complete liability by the contractor even for nominated subcontractors, or do not regulate the matter at all.

3.3 Time for completion

In this context, the contractor's principal obligation is that of meeting the completion date or, if the installation is taken over in stages, the successive completion dates. However, where the construction programme has become part of the contract, the purchaser may require that the contractor adheres to this programme. On the one hand, this assures the purchaser that progress of the works is sufficient in order to meet the completion date. On the other hand, the purchaser's own production programme and the co-ordination of the contract works with other work may require a strict adherence by the contractor to his programme. For this purpose, bonus and penalty payments sometimes are provided not only with respect to the final completion date but also for intermediate dates.

Where for reasons outside his responsibility the contractor is delayed, the contract normally entitles him to an extension of time.

3.4 Performance guarantees

It is the contractor's obligation to meet these guarantees. Where his failure to do so is due to defects in approved design or variations ordered by the purchaser, the contractor, as explained previously, is not relieved of his obligation unless an exoneration has been agreed, expressly or by implication.

A failure to meet contractual performance guarantees is often sanctioned by liquidated damages reflecting the degree by which the guarantees have been missed. Such liquidated damages generally are a function of the contract price for the works or for the affected part. Frequently an upper limit is provided for such damages.

The performance guarantees undertaken by the contractor are based on certain assumptions with respect to the quality of raw materials used and the operating conditions such as climatic conditions, availability and regularity in supply of utilities, etc. Difficulties with performance guarantees often occur when raw materials and operating conditions to not conform to the contractual assumptions. It is then quite difficult to determine whether and to what extent shortfalls in the performance guarantees are due to such variations in raw materials and operating conditions and not to defects in the contractor's design or construction. In any event, it is vital that the provisions on the required raw materials and operating conditions are drafted very carefully and provide for adjustments in case of modifications.

3.5 The site

The choice of the site, access to it and frequently also availability of utilities during the construction period, normally are an obligation of the employer. The contractor has to specify the corresponding requirements. Particularly difficult problems arise where an appropriate site cannot be found or where the site retained at the time when the contract was concluded turns out to be unsuitable.

In civil engineering and building contracts, but sometimes also in contracts for industrial works, the question arises as to who is responsible for unforeseen ground conditions. Since the site is provided by the purchaser, it would be fair and reasonable to hold the contractor responsible only for those ground conditions which, on the basis of a site inspection and the information provided to him, could have been foreseen by an experienced contractor. Some contract forms contain an express provision to this effect (see, e.g., Clause 12, F.I.D.I.C./F.I.E.C. Civil Conditions).

Such a limitation of the contractor's obligation appears all the more justified in case of contracts for industrial works where the contractor normally is not a civil engineering specialist and can hardly be expected to

take risks in this domain. Nevertheless, some contracts shoulder the contractor with this responsibility.

3.6 Price and payments

The price for turnkey works normally is a lump sum. While it is conceivable to express prices in a turnkey contract in the form of unit prices or by cost reimbursement, such arrangements seem to be rare. Nevertheless it is not infrequent that turnkey lump-sum contracts contain a list of unit prices or prices for certain parts or components of the works. Such unit and partial prices then serve for the valuation of variations and possibly also for progress payments.

Where the works are of any importance, the contract provides for partial payments. In case of lump-sum turnkey contracts, it is hardly possible to fix progress payments by reference to measurement of quantities. Thus partial payments in these contracts normally are made on the basis of milestones such as dates of placing orders to suppliers, achievement of certain stages in the process of manufacturing, packing of equipment, shipment, arrival at site, etc.

It should be kept in mind that the amounts of such partial payments do not necessarily express the exact value of the works executed at the time of payment. Thus, such partial payments cannot serve as a basis for valuation, e.g., in case of termination, except where the contract expressly provides to the contrary.

Some contractors proceed with certain initial stages of the works much ahead of programme and thereby gain cash flow and financing advantages. Normally contracts do not contain provisions which would allow the purchaser to prevent this.

3.7 Unforeseen or exterior events

In traditional law of contract, the question of unforeseen events is considered only as a cause to exempt the party affected by the event from liability for non-performance. Most *force majeure* clauses still are drafted accordingly.

This approach does not deal with the costs resulting for the parties from the occurrence of such events. Under traditional *force majeure* clauses, the loss therefore lies where it falls. A number of more modern contracts or contract forms proceed differently and allocate between the parties the risks of such unforeseen or exterior events. Under the corresponding clauses, the contractor is entitled to compensation for extra costs if certain risks materialise.

In deciding on how to allocate between the parties the costs caused by different types of exterior events, one may apply a variety of criteria such as

— geographical proximity of the origin of the event to one or the other party;

— the possibility for one or the other party to exercise some influence over the chain of events constituting the risk or over the costs resulting from it;
— the possibility for one or the other party to insure against the risk at reasonable conditions either by an outside insurance or by spreading it within its own field of activity.

These criteria may have some influence in determining the allocation of risks agreed in specific contracts but the relevant provisions do not show much consistency in the matter. The allocation often seems to result more from the parties' respective bargaining powers or from previously concluded contract provisions rather than from any decision of principle.

4. CLAIMS

Whenever the implementation of a project differs from the parties' expectations and agreements, either party or both tend to present claims—the contractor for additional payments and the purchaser for price reduction. In practice, contractors' claims are much more frequent. Where the purchaser is dissatisfied with the contractor's performance he helps himself normally by withholding payments on grounds of liquidated damages or otherwise or by opposing a counterclaim to the contractor's claims.

In view of the complexity of the project, the difficulties of their implementation and the long duration required for design and construction, it is almost inevitable that situations arise in which either side may formulate claims. Many of these situations and difficulties are resolved on the site, often by a *quid pro quo*. However, some degenerate into formal claims and even disputes. Some contractors have developed great expertise in the art of claimsmanship. It has even been said that certain contractors systematically seek to compensate tight calculations of contract prices by claims for additional payments.

By concentrating in the hands of one contractor complete responsibility for the project, the turnkey contract eliminates some areas of conflict. In this type of contract, the claims potential therefore is lower than in ordinary construction contracts. Nevertheless the range of potential conflicts remains wide and disputes are not infrequent.

Any discussion of contractual claims has to start with a careful analysis of possible grounds for entitlement. One would think that this is obvious and that there is no need to stress such an elementary legal consideration. However, many years of experience with disputes over claims have shown that the contractual or legal basis for a claim often is neglected. It is not infrequent that a contractor claims additional payments on the sole ground that he has suffered a loss.

The grounds of entitlement have to be clearly identified, firstly because, obviously, if there are no grounds there is no claim. But this identification is

important for other reasons too. The grounds of entitlement affect the nature of the claim, the form required for its presentation, the valuation of the claim and the period of limitation.

Under each of the following sub-headings, I shall therefore examine first the grounds on which a contractor may be entitled to a claim for additional payments and then discuss various aspects of their presentation and in particular the principles for valuing such claims.

4.1 Claims for variation (or change) orders

It is generally accepted and provided in most construction contracts that the employer or purchaser or his engineer or architect may require the contractor to perform works different from those described in the contract. The instructions to this effect in English terminology are referred to as "variation orders", in American terminology as "change orders".

The right to order variations is normally restricted to the works; the employer or his engineer may vary only the scope of the works, not the contract. Furthermore, the right to order variations normally does not include works of an essentially different nature from those provided in the contract. Sometimes the contract also provides quantitative limits to the allowable variations.

In building and civil engineering contracts, the architect or engineer normally has very wide powers to order variations. A properly issued variation order becomes a contractual obligation of the contractor. In contracts for industrial works such wide powers to order variations are less frequent. In many cases, the contractor is obliged to give effect to a request for a variation only if he has accepted it and agreed on a price.

Where the contractor is obliged to give effect to variation orders, normally certain forms are required. In principle, the variation order has to be in writing. Both parties are well-advised to insist that these forms be observed so as to avoid later disputes over the existence and scope of a variation order.

However, there are certain circumstances in which the requirement of form can be disregarded. In American practice, these situations are described by the term of "constructive change orders". The term describes situations in which the conduct of the architect or engineer in its nature amounts to a change order and has to be construed as such. As a simple example, one may refer to the case where the contractor is entitled to a time extension and the engineer refuses it. This unjustified refusal of a time extension in essence amounts to an acceleration order.

While the concept of the constructive change order is admitted in American case law and to some extent also in international practice (although not always under the same term), I must warn against excessive use of it. Before resorting to a constructive change order as the basis for a claim, one should examine whether the matter has not been regulated already either in the contract itself or in the applicable law.

Traditionally variation orders are a unilateral right of the employer or his architect or engineer. The contractor has no right to vary the works on his own. However, situations may arise where a variation becomes indispensable for the proper performance of the works. If, in such a situation, the contractor proposes a variation and the engineer fails to pronounce himself on the proposal, it appears justified to accept that a variation has occurred, either on the basis of a tacit agreement or by reference to the concept of constructive change order. However, should the engineer formally refuse the request, it appears difficult to admit that the contractor, in spite of this refusal, may vary the works. In such a case, the contractor may be discharged from his guarantee obligations or may even be entitled to cease performance and terminate the contract. These solutions, obviously, are not very satisfactory but I would find it even less satisfactory if the contractor unilaterally could impose on the employer variations in the works. After all, it is the employer who has to use the works once they are completed.

Where the variation requires the consent of the contractor and an agreement on the price, the valuation of the variation does not pose major legal problems, apart, perhaps, from the question of possible remedies of the employer when the contractor insists on unreasonable financial terms. Where the contractor, irrespective of his consent, has to give effect to variation orders, the contract normally provides that the variation is valued by reference to contract prices. In my submission, this applies even in those cases where the contract does not expressly provide for valuation on this basis. The varied work forms part of the contractor's contractual obligations and the agreed prices apply to it.

The application of contract prices to the varied work implies that the contractor's costs in performing the variation in principle are irrelevant and that he may be paid above or below his costs according to how he had calculated his prices. Where, as an effect of the variation, the contract prices become unsuitable, in particular in case of substantial changes in quantities, they have to be adjusted as appropriate.

Where the contract does not contain a schedule of prices applicable to the varied work, one first has to attempt to derive from the contract prices new prices for the variation. For this purpose, the contractor may have to supply his original price calculation. Where the contractor cannot be required to provide this calculation and where he refuses to do so spontaneously, reference to other methods becomes necessary, such as market prices, actual or presumed costs of the contractor or presumed costs of a third party performing the variation.

4.2 Escalation

In view of the long time span required for the performance of turnkey contracts, it is hardly possible for the contractor to control fully the escalation of his costs during performance. He may either attempt to estimate the

expected escalation and to build this estimate into his prices or provide for an escalation of the original prices, normally by reference to some formula. The policy in this respect varies considerably from one employer to another. In some countries escalation formulas are accepted as a matter of course, in others they meet violent objections.

Where the contract provides for escalation by reference to a formula, the price adjustment normally can be calculated without difficulty—provided the formula has been properly selected and the values for its various factors can be ascertained without dispute. Difficulties may arise if the basic assumptions made by the parties when choosing the formula turn out to be wrong. Thus, the proportion between the various cost factors may vary substantially or the reference index may prove to be inadequate for the formula. One would then have to consider whether reference to the applicable law (e.g., to the principle *clausula rebus sic stantibus*) permits an adjustment of the formula.

Where the contract does not contain an escalation clause, the contractor nevertheless may have a claim for cost escalation. In fact, he can be expected to take account of cost escalation only during the normal contract period. If delays occur which fall in the employer's responsibility, the contractor may be entitled to compensation for the escalation due to this delay.

The valuation of this escalation claim depends on the grounds for which the contractor is entitled to the claim. In most cases the contractor will have to show his actual costs due to escalation. Reference to indices not stipulated in the contract normally will be admitted only as supplementary evidence in order to show that the valuation of the claim is reasonable.

4.3 Compensation for breach of a contractual obligation or warranty

The *breaches* most frequently invoked against *the contractor* relate to defects in the works or to delays in their completion. Such a breach gives rise to a claim for damages by the employer. Under the applicable law, the contractor normally has to repair all the losses of the employer, including the loss of use of the installation and the loss of profit. However, most systems of law provide for some limitation to the scope of the losses which have to be repaired. The criteria for this limitation vary from one system to another and are referred to by such terms as "remote damage" or "*dommages indirects*". Most of the losses which an employer may suffer due to delayed or defective performance by a turnkey contractor can be foreseen, so that the limitations provided by the applicable law are of little comfort to the contractor.

Therefore, contractors frequently try to protect themselves either by excluding claims for certain types of losses or by the provision of liquidated damages; sometimes both approaches are applied cumulatively.

The exclusion of certain types of losses generally is possible under the applicable law. However, clear language is necessary. Expressions such as "consequential loss" or "indirect damage" may be interpreted quite

differently from one legal system to another and thus may not achieve the limitation sought by the contractor.

Liquidated damages may be more effective to limit the contractor's liability since, as explained above, the total amount of such damages often is limited to a certain percentage of the contract price. However, not infrequently, the contract fails to deal with the situation where the limits are exceeded or where the works are not completed at all. In such situations it may be that the full liability of the contractor under the applicable law is revived.

With respect to *breaches by the employer*, the obligations which have to be considered generally are of a greater variety than those which are relevant in claims against the contractor: on the one hand, the employer normally undertakes to make certain supplies, including that of the site, guarantees the availability of utilities, access to the site, reasonable dispatch in administrative procedures, etc. On the other hand, he normally can be presumed under the applicable law to have a general obligation of good faith and constructive co-operation which prohibits unnecessary or unreasonable interference with the contractor's work. In this context, it has also been argued that the employer warrants a reasonable conduct of the engineer chosen by him. Finally, the employer has the obligation to make payments at the contractually provided time.

Under the applicable law a failure of a party to perform a contractual obligation does not necessarily give a claim to the other party for breach of contract. This is the case in particular where the failure consists of the omission of an action for the performance of which no fixed time has been agreed. In these cases, the obligated party normally is in default only if it has been put on notice. Contracts rarely regulate the matter with the necessary clarity.

Consequently, the issue frequently has to be solved on the basis of the applicable law, which may provide unpleasant surprises for the contractor.

Most legal systems contain specific rules for the case where the delayed obligation is one for payment. In many systems the losses resulting from the delay are summarily assessed by a statutory interest rate and in certain systems losses above those covered by the statutory rate cannot be recovered.

As to the valuation of claims for breaches, it has just been explained that it is based on the losses suffered by the injured party and that the contract may provide limits as to the losses which have to be compensated. When it comes to claims against the employer, it can be noted that, in international contract practice, limitations in the valuation of such claims seem to be less frequent than those on claims against the contractor. In particular, apart from occasional provisions on interest for delayed payments, contracts normally do not provide for liquidated damages for the employer's breaches. Occasionally the exclusion of certain types of losses as discussed in the context of the employer's claims is applied to the claims of both parties. Where this is not the case, the contractor is entitled to compensation for all his losses including loss of profit.

4.4 Compensation for excepted risks

As previously discussed, contracts sometimes provide for an allocation of certain risks between the parties. These provisions normally consist in granting to the contractor a compensation for additional costs if the specified risk materialises. Such excepted risks can consist in changes in legislation, natural disasters, war or similar events in the employer's country or region. One might consider that unforeseen ground conditions also fall in this category. However, some legal systems and certain contract provisions treat the matter as a warranty of the employer.

Where the employer undertakes to indemnify the contractor in case certain risks materialise, the contractor's claim normally is limited to his additional costs. Consequently, claims on the grounds of such contract provisions exclude compensation for loss of profit.

It is submitted that this limitation to additional costs is justified even in the absence of an express contract provision to this effect. In fact, the payment made by the employer on this ground is not a sanction for his failure to meet his contractual obligations or warranties but results from his undertaking to insure the contractor against certain risks. It follows that clauses of this nature should be construed according to principles developed for the interpretation of insurance contracts. The insurer's liability is limited to the specified risks and losses and cannot be extended by implication.

4.5 Claims for time extension

Certain events which entitle the contractor to additional payments also give him the right to an extension of the time for completion. However, there is no automatic and necessary link between the two issues. In particular, a claim for additional time does not automatically attract additional payments. This is the case in particular with respect to events outside the parties' control. Where such events occur, the contractor frequently can claim additional time on the grounds of *force majeure* or similar provisions of the contract or the applicable law. However, he is entitled to additional payments only if the employer has accepted specifically this risk as previously discussed.

4.6 Valuation of some cost factors

Costs of delay are particularly difficult to value. First of all, it has to be established that the event giving rise to the claim caused a particular delay in one or several contract activities. Contractors tend to believe that this can be done simply by comparing the scheduled and the actual time for the performance of the particular activity. This is clearly not enough. The contractor has to establish that, in the absence of the event in question, the activity would have been performed to programme. In order to do so, the contractor may, among other methods, refer to previous rates of progress,

taking account of the learning curve or he may rely on general engineering experience which allows certain conclusions as to the rate of progress which normally can be achieved under given working conditions and with given types and quantities of plant and personnel employed.

Once the contractor has established the delay for which he can claim compensation he has to show the resulting costs. These may relate simply to the delayed activity. However, where this activity was critical for the programme, other activities can also have been delayed. The effects can be quite dramatic, especially where certain works can be performed only at certain times, for instance in the dry season. In view of his duty to minimise losses, the contractor also has to show that no adjustment of the original programme could have reduced the effect of the delayed activity on other activities.

The costs of delay result primarily from the fact that personnel, plant and other assets of the contractor remain idle during the delayed period. The contractor has to show that he could not have employed them elsewhere. On overseas projects, this is often relatively easy with respect to expatriate personnel and plant imported specifically for the project. In fact in most cases it is not clear from the beginning that the delay will be of such importance that the contractor can be expected to withdraw from the site some of his personnel and possibly even plant.

When valuing the personnel costs of delay, the productive personnel has to be counted at basic rates, i.e., excluding, for instance, overtime payments, whereas the personnel of the site installation is to be counted at the costs of full activity. In the valuation of plant, one finds occasional reference to plant hire rates or similar charts as they are prepared by more or less official sources in quite a number of countries (particularly detailed lists are the *Barème bleu* in France, the *Baugeräteliste* in the Federal Republic of Germany and the list of the U.S. Contractors Association). These charts normally are for domestic and not for overseas use of plant and in many cases they reflect rates for plant in operation and the corresponding depreciation. In so far they cannot be directly applied for valuing the cost of plant remaining idle. However, they provide useful references for such valuation.

In addition to the costs of personnel and plant remaining idle, delay in critical activities normally increases the costs of the site installation. Such overall delay may also cause financing expenses and cost escalation. These expenses and escalation resulting from a delay for which the contractor can claim compensation do not form part of the risks which the contractor had to build into his price. He is therefore entitled to reimbursement of the corresponding costs, even if the contract itself excludes a claim for escalation.

Events for which the contractor can claim compensation, without creating a delay in the programme, may have caused *disruption* in the contractor's work and *reduced the productivity* of his personnel and plant. Such effects may be caused, e.g., by acceleration orders, untimely variation orders, inappropriate testing methods etc. The occurrence of such disruption and its costs are

particularly difficult to establish. The contractor may refer to his previous activity under similar circumstances but in the absence of the disturbance. If there is no period of time during which the contractor was able to perform the activity in question without disruption, an abstract assessment by reference to general engineering experience may be required.

When evaluating the costs of disruption or loss of productivity one can refer normally to the contractor's operating costs for personnel and plant.

Overheads and profits regularly form part of claims presented by contractors. Whether the contractor is entitled to these heads of claims and how they are to be assessed depends primarily on the ground of entitlement for the particular claim.

Where the claim has to be valued by reference to contract prices, overheads and profits are to be included at the rate provided by the contractor in the original make-up of his prices. Difficulties may arise due to the fact that, when calculating their prices, contractors often provide in one and the same item for risk, contingencies and profit. Where new prices for varied work are established by reference to actual costs, it may not be justified to allow an item for risks and contingencies since at the time of valuation they can no longer occur.

Where the claim is based on breach of contract, the contractor, as explained, is entitled to compensation for the loss as it actually occurred. Thus, overheads and profits cannot be valued on the basis of his estimates at the time when he calculated his prices. The overhead valuation for this situation depends on the manner in which the contractor allocates his overheads between various contracts. Generally, it can be said that it is doubtful whether, in situations where no delay occurred, the contractor suffered a loss of overheads. As to profit in claims for breach, the entitlement again should not be based on the contractor's expectations at the time when he calculated his prices but on the profit which he has actually been prevented from making. The overall profit of his organisation in the relevant year may be a useful reference.

SELECTED BIBLIOGRAPHY

Contract forms

United Nations Industrial Development Organisation: UNIDO Model Form of Turnkey Lump Sum Contract for the Construction of a Fertilizer Plant (Ref. UNIDO/PC 25, 9 Dec. 1981). Guidelines on the Model Form (Ref. UNIDO/PC. 40, 21 June 1982).

Fédération internationale des ingénieurs conseils (F.I.D.I.C.)/Fédération internationale europeenne de la construction (F.I.E.C.): Conditions of Contract (International) for Works of Civil Engineering Construction, with forms of tender and agreement, Third ed. Mar. 1977 (F.I.D.I.C./F.I.E.C. Civil Conditions).

F.I.D.I.C.: Conditions of Contract (International) for Electrical and Mechanical Works (including erection on site), with forms of tender and agreement, Second ed., 1980 (F.I.D.I.C., E. & M.).

Institution of Chemical Engineers: Model Form of Conditions of Contract for Process Plant, suitable for lump-sum contracts in the United Kingdom, 1981.

The Association of Swedish Engineers and Architects (Svenska Teknologföreningen): General Conditions of Contract for Building, Civil Engineering and Installation Work, executed on a Package Deal Basis (ABT74).

N.I.F.O./M.V.L.: North Sea Offshore Lump Sum Construction Contract, a model contract negotiated between N.I.F.O., the Norwegian Industry Association for Operating Companies and M.V.L., the Federation of Norwegian Engineering Industries, 1983.

Books and articles

Agency for International Development (A.I.D.): *Handbook 11, Country Contracting,* Washington D.C., regularly updated.

Basnayake, Sinha: "The work of UNCITRAL in the Field of Industrial Contracts" (1984) 1 I.C.L.R. 273–276.

Boon, Jean-Albert and Goffin, René: *Les contrats clé en main,* Paris, etc. (Masson) 1981, 150 pp.

Böckstiegel, Karl-Heinz (ed.): *Vertragsgestaltung und Streiterledigung in der Bauindustrie und im Anlagenbau (Contracts and Dispute Settlement in Civil Engineering and Construction of Plants),* German Institute of Arbitration, Vol. 4, Cologne, etc. (Heymanns), 1984, 348 pp.

Brabant, André: *Le contrat international de construction,* Bruxelles (Bruylant), 1981, 479 pp.

Brand, Gerhard and Meischeider, Dieter: "Der An lagenexportvertrag auf Basis 'Produkt in die Hand' ", *AW Recht im Aussenhandel,* No. 77, 16/17 April 1985, pp. I–VII.

Counter, Kenneth: "The Law Applicable to International Construction Contracts" (1984) 1 I.C.L.R. 309–316.

Dünnweber, Inge: *Vertrag zur Erstellung einer schlüsselfertigen Industrieanlage im internationalen Wirtschaftsverkehr,* Berlin, etc. (de Gruyter), 1984, 317 pp.

Gauch, Peter and Sweet, Justin (eds.): *Selected Problems of Construction Law: International Approach,* Fribourg, Switzerland (University Press), 1983, 287 pp.

Goedel, Joachim E.: "Recommendations for Review of the F.I.D.I.C. Conditions of Contract" (1983) 1 I.C.L.R. 50–72.

Hugues, G. A.: *Building and Civil Engineering Claims in Perspective,* London, etc. (Construction Press), 1983, 232 pp.

Joussen, Peter: *Der Industrieanlagenvertrag,* Heidelberg (Verlagsgesellschaft Recht und Wirtschaft mbH), 1981, 486 pp.

Kolrud, Helge J., Stoltz, Eric Chr. and Thomsen, Hans B.: *North Sea Offshore Construction Contracts, A guide for contractors,* Oslo (Mekaniske Verksteders Landsforening), 1979, 150 pp.

Kühnel, Wolfgang: "Ausbildungsleistungen in Exportverträgen des deutschen Grossanlagenbaus" (1981) R.I.W. 533–535.

Major W. T. and Ranson A: *Building and Engineering Claims,* London (Oyez), 1980, 108 pp.

Maskow, Dietrich: "Der Anlagenvertrag" in: Enderlein, Fritz (ed.): *Handbuch des Aussenhandelsverträge,* Berlin (Staatsverlag der D.D.R.), 1980, pp. 59–201.

Nicklisch, Fritz (ed.): *Bau- und Anlagenverträge, Risiken, Harfung, Streitbeilegung (Contracts for Construction or for Large Industrial Projects, Risks, Liability, Settlement of Disputes),* Heidelberg (C. F. Muller), 1984, 318 pp.

Nicklisch, Fritz (ed.): *Leistungsstörungen bei Bau- und Anlagenvertragen (Impairment of Performance in Contracts for Construction and for Large Industrial Projects),* Heidelberg (C. F. Müller) 1985, 108 pp.

Oberreit, Walter W.: "Turnkey Contracts and War: Whose Risk?" in: Horn, Norbert and Schmitthoff, Clive M. (eds.): *The Transnational Law of International Commercial Transactions,* Deventer, etc. (Kluwer), 1982, pp. 191–198.

Perlman, Matthew S.: "Contractor's Claims for Delay" (1984) 1 I.C.L.R. 1–15.

Powel-Smith, Vincent and Sims, John: *Building Contract Claims,* London, etc. (Granada) 1983, 319 pp.

Schneider, Michael E.: "International Construction Contracts (1983) 9," *Droit et pratique du Commerce International,* pp. 277–322, 429–477, 649–686.

Salem, Mahmoud and Sanson, Marie-Angèle: *Les contrats "clé en main" et les contrats "produit en main",* Technologie et vente de developpement, Paris (Librairies Techniques), 1979, 212 pp.

Stokes, McNeill: *International Construction Contracts,* New York (McGraw-Hill), 2nd ed., 1980.

Trickey, Geoffrey: *The Presentation and Settlement of Contractors Claims,* London, etc. (Spon), 1983, 358 pp.

United Nations Centre on Transnational Corporations (UNCTC): *Features and Issues in Turnkey Contracts in Developing Countries: A Technical Paper,* New York, 1983, 156 pp. Ref. ST/CTC/28 UN Sales No. E.83.11.A.13.

United Nations Commission on International Trade Law (UNCITRAL): *Draft Legal Guide on Drawing up International Contracts for Construction of Industrial Works,* drafting and adoption of chapters in progress; general ref. A/CN. 9 WG.V.

United Nations Economic Commission for Europe (ECE): *Guide on Drawing up Contracts for Large Industrial Works,* New York, 1973, 32 pp. Ref. ECE/TRADE/11; UN Sales No. E.73.II.E.13.

Wallace, Q.C., I. N. Duncan: *The International Civil Engineering Contract,* A

commentary on the F.I.D.I.C. International Standard Form of Civil Engineering and Building Contract, London (Sweet and Maxwell) 1974, 179 pp., First Supplement 1980.

Idem: Contracts for Industrial Plant Projects (1984) 1 I.C.L.R. 322–355.

Westring, Gösta: "Construction and Management Contracts," in: Horn and Schmitthoff: *Transnational Law* (see Oberreit), pp. 175–190.

Widmann, Albert J.: *Handbuch des Investitionsgüter- und Industrieanlagen-Exports,* Munich, 1977.

Wiegand, Christian: "The Applicable Substantive Law in the Case of International Construction Contracts" (1984) 1 I.C.L.R. 133–158.

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