

"performance guarantees" in paragraph 34 the expression "if provided for in the tender".

159. It was generally agreed that the Guide should draw the attention of parties to problems connected with the validity of the contract, and that this issue should be elaborated either in this or in another chapter. It was also agreed that the written form for a works contract should be strongly recommended to the parties even in cases where it was not required by the applicable law.

160. It was pointed out that some linguistic revisions were needed in the Arabic version of the chapter, in particular in paragraphs 1 and 5. Some revisions were also needed in the Spanish version of the chapter. Various suggestions were made for improving the drafting of the chapter.

Other business and future work

161. The Secretary of the Commission informed the Working Group that, subject to approval by the Commission, the eighth session of the Working Group was scheduled to be held at Vienna from 17 to 27 March 1986. The Working Group agreed that the secretariat should submit to that session the draft introduction to the Guide and the draft chapters "Identifying project and selection of parties", "General drafting considerations", "Supply of equipment and materials", "Supplies of spare parts and services after construction" and "Settlement of disputes". In addition, if possible, the secretariat might submit a few revised draft chapters which it considered desirable to submit for further careful examination by the Working Group because of the extent of revision required.

2. Draft Legal Guide on drawing up international contracts for construction of industrial works: draft chapters: report of the Secretary-General (A/CN.9/WG.V/WP.15 and Add.1-10)

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Introduction

1. At its second session, the Working Group on the New International Economic Order decided to request the secretariat to commence the preparation of a legal guide on contracts for the supply and construction of large industrial works.¹ The Commission at its fourteenth session approved this decision by the Working Group and decided that the Guide should identify the

legal issues involved in such contracts and suggest possible solutions to assist parties, in particular from developing countries, in their negotiations.²

2. After having completed at its second³ and third⁴ sessions the consideration of a study submitted by the secretariat of clauses used in contracts for the supply

²Report of the United Nations Commission on International Trade Law on the work of its fourteenth session, *Official Records of the General Assembly, Thirty-sixth Session, Supplement No. 17 (A/36/17)*, para. 84.

³A/CN.9/198.

⁴A/CN.9/217.

¹A/CN.9/198, para. 92.

and construction of large industrial works,⁵ the Working Group at its third session requested the secretariat to submit to the Working Group an outline of the structure of the Guide and some sample draft chapters.

3. At its fourth session, the Working Group discussed the draft outline of the structure of the Guide and the draft chapters "Choice of contract type", "Exemptions" and "Hardship clauses".⁶ At its fifth session, the Working Group discussed the draft chapters "Termination",⁷ "Inspection and tests", "Failure to perform",⁸ "Variation clauses", "Assignment" and "Suspension of construction" as well as a note on the format of the Guide.⁹ At its sixth session, the Working Group discussed the draft chapters "Damages", "Liquidated damages and penalty clauses",¹⁰ "Scope and quality of works", "Completion, acceptance and take-over", "Allocation of risk of loss or damage", "Insurance", "Sub-contracting" and "Security for performance".¹¹

4. The present report contains in its addenda the following new draft chapters prepared by the secretariat: "Price", Add. 1; "Consulting engineer", Add. 2; "Transfer of technology", Add. 3; "Transfer of ownership of property", Add. 4; "Applicable law", Add. 5; and "Construction on site", Add. 6. In addition, this report contains a revised draft outline of the structure of the Guide, Add. 7, as well as the revised draft chapters "Choice of contracting approach", Add. 8, and "Completion, take-over and acceptance", Add. 9.

5. At its fourth session, the Working Group agreed that, as the work progressed, some rearrangement of the structure of the Guide might become necessary, and the secretariat was given discretion to make such rearrangement.¹² The "Revised draft outline of the structure" reflects such rearrangements. However, since the revised draft outline has not yet been endorsed by the Working Group, the chapters continue to be referred to by title rather than number. The chapters "Choice of contracting approach" and "Completion, take-over and acceptance" are revised versions of the draft chapters "Choice of contract type" (A/CN.9/WG.V/WP.9/Add.2) and "Completion, acceptance and take-over" (A/CN.9/WG.V/WP.13/Add.2), which had previously been discussed by the Working Group.¹³ The substance of the section in the draft chapter "Choice of contract type" entitled "Contract types classified by pricing methods" has been incorporated in the draft chapter "Price" (A/CN.9/WG.V/WP.15/Add.1).

⁵A/CN.9/WG.V/WP.4 and Add.1-8; A/CN.9/WG.V/WP.7 and Add.1-6.

⁶A/CN.9/WG.V/WP.9 and Add.1-4.

⁷A/CN.9/WG.V/WP.9/Add.5.

⁸A/CN.9/WG.V/WP.11/Add.1 and 3.

⁹A/CN.9/WG.V/WP.11/Add.6-9.

¹⁰A/CN.9/WG.V/WP.11/Add.4 and 5.

¹¹A/CN.9/WG.V/WP.13/Add.1-6.

¹²A/CN.9/234, para. 13.

¹³*Ibid.*, para. 36, and A/CN.9/259, para. 61.

[A/CN.9/WG.V/WP.15/Add.1]

Price

Summary

Three main methods of pricing have been developed in relation to works contracts. These are the lump-sum, cost-reimbursable and unit-price methods. Under the lump-sum method, the purchaser is obligated to pay a certain amount, which remains the same (unless the amount is adjusted or revised) even though the costs of construction turn out to be different to those anticipated at the time of the conclusion of the contract. The lump-sum method protects the purchaser against increases in the costs of construction. However, the lump-sum price may be higher than a cost-reimbursable price for the same construction, since the lump-sum price usually includes an additional amount to protect the contractor against the risk of increases in costs. A disadvantage of the lump-sum method is that it may induce the contractor to reduce his construction costs by using minimal standards of construction (paragraphs 6-9).

Under the cost-reimbursable method, the purchaser is obligated to pay all reasonable costs incurred by the contractor in constructing the works, together with an agreed fee. Under this method, the purchaser bears the risk of an increase in the costs of construction over those anticipated at the time of the conclusion of the contract. In addition, the incentives to economy and speed of completion of construction by the contractor may be reduced, since all costs of construction incurred by the contractor are to be paid by the purchaser. Another disadvantage of the cost-reimbursable method is the burdensome administration connected with its implementation. For these reasons, the cost-reimbursable method should be used in a limited class of cases, e.g. when the extent of construction cannot be anticipated accurately at the time of the conclusion of the contract, or the works to be constructed is of exceptional complexity (paragraphs 10-25). The risk of an increase in construction costs borne by the purchaser may be limited by agreeing upon a ceiling on the total amount of reimbursable costs (paragraph 16). An incentive to economy and speed of completion of construction may be created by a target fee (paragraph 25).

Under the unit-price method, the parties agree on a rate for a unit of construction, and the price is determined by the total units actually used for the construction. The risk of cost increases which occur because the actual quantity of the work exceeds the quantity estimated at the time of the conclusion of the contract is borne by the purchaser, while the risk of increases in the cost of each unit is borne by the contractor (paragraphs 26 and 27).

Two or all three pricing methods may be combined in a works contract and used for pricing the construction of the works or a portion of the works.

If the purchaser is interested in completion of construction earlier than envisaged in the contract, bonus payments in addition to the price may be agreed in the contract (paragraphs 28 and 29).

Fluctuations in the exchange rate of the currency in which the price is determined may create certain risks for the parties. The parties may wish to take steps to reduce this risk and to allocate it in an appropriate way between the parties (paragraphs 30-36).

Even if a lump-sum price or unit-price rates are agreed, the parties may wish to envisage specific situations where the price is to be adjusted or revised. An adjustment of the price may be needed in cases where the nature or extent of construction work is changed (paragraphs 40-46). A revision of the price may be needed where some economic or financial factors change after the conclusion of the contract so as to bring about a change in the relationship between the values of the performances by the parties (e.g. increases or decreases in construction costs or changes in the value of the price currency in relation to other currencies). The revision of the price due to a change in construction costs may be effected on the basis of an index clause, and changes in specified price indices may be relevant (paragraphs 49-55).

Another approach may be to use the documentary proof method and base the revision on the change in actual construction costs. This approach may, however, be appropriate for use only in cases where an index clause cannot be used, and should be limited to portions of the price based on unstable factors. The revision should cover only a change in costs actually incurred by the contractor as compared to his costs estimated at the time of the conclusion of the contract, and should not cover an increase in costs due to an underestimation of the scope of construction at the time of the conclusion of the contract. Revision should occur not only in case of an increase, but also in case of a decrease in costs (paragraphs 56 and 57).

Changes in the exchange rate of the price currency in relation to other currencies may be dealt with through a currency clause (paragraphs 58 and 59) or a unit-of-account clause (paragraphs 60-62).

The payment conditions in the contract should provide for specified percentages of the price to be payable at different stages of construction. They should also stipulate modalities of payment and indicate the place of payment (paragraph 63).

An advance payment by the purchaser should be limited to the portion of the price reasonably needed to cover the contractor's expenses in the initial stages of the construction and protect him against loss in the event of termination of the contract in the initial stages (paragraphs 65 and 66).

Payment of portions of the price may depend upon the progress of construction. Specified sums may be payable upon completion of defined portions of the

construction, or the contractor may be entitled to receive payments for construction commensurate with the amounts of construction completed within specified periods of time (paragraphs 67-72).

A certain percentage of the price may be payable upon proof that construction has been successfully completed (paragraph 73), with the remainder of the price payable only after expiry of the guarantee period (paragraphs 74 and 75). If a credit is granted by the contractor to the purchaser, the portion of the price covered by the credit may be payable in instalments within a certain period of time after proof of satisfactory completion of construction (paragraphs 76-78).

* * *

A. *General remarks*

1. The formulation of contractual provisions relating to the price to be paid by the purchaser must take into account a number of factors. The price may cover different types of performances by the contractor, e.g. the supply of equipment, materials and services, and the transfer of technology. A considerable period of time may elapse from the conclusion of the contract until completion of construction, and during this period there is a possibility of changes in construction costs, both in respect of the construction to be effected by the contractor himself and that to be effected by sub-contractors. In addition, the extent of construction to be effected is sometimes not precisely determinable at the time of the conclusion of the contract. The parties should decide who is to bear the consequences of changes in costs and reflect their decision in the contract terms.

2. Three main methods of pricing are in common use in works contracts. These are the lump-sum, cost-reimbursable and unit-price methods. However, in appropriate circumstances, two or all three methods may be used in combination for pricing the construction of the works or a portion of the works.

(a) *Lump-sum method*: under this method, the parties agree on the amount to be paid for the construction (see paras. 6-9, below). Subject to possible adjustment (see section E, 1, below) or revision (see section E, 2, below) in special circumstances, this amount remains the same even though the cost of construction turns out to be different from that anticipated at the time of the conclusion of the contract.

(b) *Cost-reimbursable method*: under this method, the purchaser is obligated to pay all reasonable costs incurred by the contractor in constructing the works, together with an agreed fee (see paras. 10-25, below).

(c) *Unit-price method*: under this method, the parties agree on a rate for a unit of construction, and the price is determined by the total number of units actually used for the construction (see paras. 26 and 27, below).

3. Under the lump-sum method, the risk of an increase in the costs of construction is borne by the contractor (except to the extent that the price is subject under the contract to adjustment or revision), and under the cost-reimbursable method, by the purchaser. Under the unit-price method, it is allocated to both parties (see para. 27, below).

4. Legal systems adopt different approaches when the price, or a method for determining the price, is not specified in the contract. Under some legal systems, the contract is invalid, while under other legal systems the contract remains valid and the price is determinable under the rules of the legal system. Since the rules under some legal systems for determining the price in the absence of an agreed price may not be appropriate to works contracts, and in order to reduce uncertainty as to the price, it is advisable for the parties to determine the price, or agree on a method for determining the price, in the contract.

5. In drafting the payment conditions in a works contract (see section F, below), the parties should consider applicable foreign exchange, tax and other regulations of a public nature. The violation of such regulations may result in the invalidity of the contract or of some of its provisions. Special problems which may arise in connection with the price to be paid for the transfer of technology are discussed in the chapter "Transfer of technology".

B. Methods of pricing

1. Lump-sum method

6. Under the lump-sum method, the contractor is entitled only to the price determined in the contract, irrespective of the actual costs incurred by him during the construction. The mere use of the term "lump-sum price" may, however, be insufficient under the applicable law to achieve this result. Accordingly, the contract should contain clear provisions to this effect. The parties, however, sometimes provide for an adjustment or revision of the price in certain defined circumstances (see paras. 36-62, below). The lump-sum method of pricing is usually used in turnkey contracts (see paras. 15 and 26, below, and the chapter "Choice of contract type"). It is also frequently used when the separate contracts approach is chosen, in particular in cases where at the time of the conclusion of the contract the extent of construction is known and significant changes in the scope and quality of the works at a later stage are not anticipated.

7. The lump-sum amount is the price for the entire performance to be effected by the contractor. For practical reasons, it may, however, be advisable to break down the lump-sum into the amounts payable for different portions of the works, or the amounts payable for equipment, for materials, for different kinds of services and for the transfer of technology. Such a breakdown may facilitate adjustment of the price in

certain cases envisaged in the contract (for example in case of a variation of a portion of the construction: see the chapter "Variation clauses"). In addition, such a breakdown is needed if different payment conditions are agreed on for different portions of the works or for different kinds of performances by the contractor (e.g. supplies of equipment, or training: see para. 63, below). Tax legislation or other regulations of a public nature may also require some breakdown of the price, e.g. specifying the portion of the price to be paid for a transfer of technology (see the chapter, "Transfer of technology").

8. The main advantage of the lump-sum method of pricing for the purchaser is that the contractor bears the risk of increases in the cost of construction. Subject to a price adjustment or price revision clause included in the contract, the purchaser does not have to pay more than the amount fixed in the contract. He is, however, obligated to pay this amount even if the costs incurred by the contractor turn out to be lower than anticipated at the time of the conclusion of the contract. Another advantage of a lump-sum contract for the purchaser is that the administration of such a contract may be somewhat less burdensome than if the unit-price method or, in particular, the cost-reimbursable method were adopted. Under the unit-price method, measurement of the extent of work completed and, under the cost-reimbursable method, verification of the costs incurred by the contractor are essential to determine the price to be paid.

9. In calculating a lump-sum price, the contractor usually includes an increment in addition to his estimated costs and his profits in order to protect himself against the risk of an increase in costs. The lump-sum price may therefore be higher than a cost-reimbursable price for the same construction, provided that in executing the cost-reimbursable contract the purchaser or his consulting engineer is able to ensure an economical choice by the contractor of sub-contractors and of equipment and materials, as well as efficient procedures for construction. Another disadvantage of the lump-sum method for the purchaser is the potential motivation for the contractor to reduce his construction costs by using minimal standards of construction. The lump-sum method requires, therefore, a precise determination in the contract of the scope and quality of the works and some monitoring by the purchaser of the standards of construction.

2. Cost-reimbursable method

10. If the cost-reimbursable method is used by the parties, the exact amount of the price is not known at the time of the conclusion of the contract, since the price will consist of the actual costs of construction incurred by the contractor and a fee to be paid to him to cover his overheads and profit. This method of pricing, therefore, requires more detailed contractual provisions than the lump-sum method.

11. The cost-reimbursable method may be appropriate in a limited class of cases. Thus, it may be appropriate when the extent of work or materials and the kinds of equipment needed for the construction cannot be accurately anticipated at the time of the conclusion of the contract (e.g. where the works has not been completely designed because of the speed at which construction has to be commenced, or where the construction requires substantial underground work and underground conditions cannot be accurately predicted), or where the major part of the construction is to be done by sub-contractors and the prices to be charged by them are not known at the time of the conclusion of the contract. This method may also sometimes be used where the construction of the works involves unusual difficulties (e.g. special design or complex engineering). In such cases there would be many unknown factors affecting pricing, and a lump-sum price would have to be highly inflated in order to protect the contractor against his risks.

12. The main disadvantage of the cost-reimbursable method for the purchaser is that he bears the risk of an increase in the costs of construction over those anticipated at the time of the conclusion of the contract. Furthermore, since all costs of construction incurred by the contractor are to be paid by the purchaser, the incentives to economy and speed of completion of construction by the contractor may be substantially reduced. Financing institutions are therefore usually opposed to this method of pricing. In order to protect the purchaser, the contractor should be obligated to construct the works efficiently and economically and be entitled to the costs of construction only if they are reasonable. In practice, however, it may be difficult to enforce such general obligations. As further protection, the contract may require the participation of the purchaser or his engineer in the selection of sub-contractors, or at least approval by the purchaser or his engineer of the prices of equipment, materials or services to be supplied by third parties (see the chapter "Sub-contracting"). In addition, the parties may agree upon a ceiling on the total amount of reimbursable costs (see para. 16, below), and the fee of the contractor may be fixed in a manner that gives him an incentive to minimize the costs of construction (see para. 25, below).

13. In some cases the parties may wish to provide that the purchaser is to be entitled to require conversion of a cost-reimbursable price into a lump-sum price. The contract may provide that at any time before the completion of construction the purchaser may request the contractor to quote a lump-sum for which the contractor is prepared to complete the construction which is then outstanding and not paid for. However, the contractor should be obligated to submit such a quotation only when it is reasonably possible for him to do so, having regard to the nature of the construction to be effected. If the purchaser accepts the quotation submitted, the cost-reimbursable price would be converted into a lump-sum price. If the quotation is not acceptable to the purchaser, the original cost-reimbursable price would continue to subsist.

14. To ensure a smooth operation of the cost-reimbursable method, a system of record-keeping should be adopted which would accurately evidence the costs incurred by the contractor. The contractor should be obligated to maintain records in accordance with the forms and procedures reasonably required by the purchaser, reflecting charges incurred and payments effected by the contractor.

15. The cost-reimbursable method may not be appropriate for a turnkey contract. An essential aspect of a turnkey contract is that the contractor assumes responsibility for constructing works which will operate in accordance with the contract. He will usually assume such a responsibility only if he is allowed freely to choose his sub-contractors. However, under the cost-reimbursable method, the purchaser may wish to participate in the selection of sub-contractors (see para. 12, above).

16. The risk borne by the purchaser of an increase in construction costs may be limited by agreeing upon a ceiling on the total amount of reimbursable costs. If the costs incurred turn out to be lower than the ceiling, the purchaser will only be obligated to pay such incurred costs. A contractor who agrees to such a ceiling, however, may increase his fee so as to protect himself against the risk he is bearing of an increase in costs beyond the ceiling.

17. Another approach may be for the parties to agree at the time of the conclusion of the contract upon an estimate of the costs of construction (i.e. a "target cost") without, however, providing that this target cost is to constitute a ceiling on the total amount of reimbursable costs. They may then provide that, if the actual costs exceed the target cost, the contractor is to be paid only a percentage of the excess. It may also be provided that this percentage is to decrease as the excess increases. Alternatively, the parties may agree that, if the target cost is exceeded, the purchaser may terminate the contract without being liable to the contractor for costs incurred by the contractor incidental to the termination. This right of the purchaser to terminate may give the contractor an incentive to keep his costs within the estimate. Under this alternative, however, the purchaser may face the difficulty of having either to refrain from terminating the contract and to proceed with construction by the contractor, with an obligation to pay him all reimbursable costs exceeding the target cost, or to terminate the contract and complete the construction by engaging another contractor.

18. The contract should identify those kinds of costs which are to be reimbursed. Since it may be difficult to identify the totality of costs which may arise in connection with construction, it is advisable to enumerate the costs to be reimbursed and to provide that all other costs are to be borne by the contractor, or vice versa.

19. Certain overhead expenses of the contractor (e.g. those connected with the head office of the contractor)

should be considered as covered by his fee and excluded from the costs which are to be reimbursed by the purchaser. In defining when wages paid to the contractor's personnel are to be reimbursable, the contract may provide that only wages of the personnel on the site are to be reimbursable, while the wages of personnel at the contractor's head office are to be considered as overhead expenses covered by the fee. Disputes may arise on how to value smaller items of equipment or materials taken from the contractor's store, as they may have been bought by the contractor at various prices before commencement of the construction. Such disputes may be prevented by agreement in advance on their prices. Costs of repairing defects for which the contractor is responsible should be borne by him.

20. Costs incurred in employing sub-contractors and suppliers should include only costs actually paid by the contractor, taking into account all discounts granted to the contractor by sub-contractors and suppliers. The contract should determine whether discounts granted to the contractor against payments in cash by the contractor should also be taken into account.

21. Smooth and continuous construction requires that all the necessary materials be available on the site in accordance with the time schedule. In some cases, however, it may be very difficult to envisage the precise quantities needed for construction. Over-ordering may occur, and losses may be incurred in connection with the resale of excess materials. The contract may set a limit on the extent to which such losses are to be reimbursed by the purchaser.

22. Under some contracts, certain equipment, materials or services to be used in the construction may be supplied by the purchaser and paid for by the contractor. If in such cases the contract fixes a ceiling on the reimbursable costs (see para. 16, above) or fixes a target cost (see paras. 17, above and 25, below), the question may arise whether, in determining if the ceiling or target cost has been reached, the price paid by the contractor is to be taken into account. This question should be settled in the contract.

23. The fee to be paid to the contractor may be a fixed amount. If there are variations affecting the extent of construction, the contractor's fee may require an adjustment, and the contract should provide a mechanism therefor (see the chapter "Variation clauses").

24. A fixed fee gives no incentive to the contractor to minimize his costs of construction. An alternative approach may be to agree only on a method of determining the fee at a later stage, taking into account the actual extent and costs of construction. However, this approach should be adopted only in exceptional cases, as it may provide an incentive to the contractor to increase the costs of construction. This method of determining the fee is forbidden under some legal systems.

25. The most advisable method of determining the contractor's fee is to fix a "target fee", which is a percentage of the target cost. If the reimbursable costs are less than the target cost, the target fee would be increased by a specified percentage of the saved cost. The contract may provide that, as the saved costs increase, the percentage payable is also to increase. If, however, the reimbursable costs are more than the target cost, the target fee would be decreased by a specified percentage of the excess in cost. The contract may provide that as the excess increases, the percentage to be deducted is also to increase. In addition to the costs of construction, other aspects may be regarded as relevant in increasing or decreasing the target fee, such as the time taken to complete construction, and the performance of the completed works (e.g. its consumption of raw materials or energy). It may be noted that providing an incentive to the contractor to lower the costs of construction by varying the fee payable may be combined with an incentive based on an obligation to share the costs of construction when they exceed a target cost.

3. Unit-price method

26. If the unit-price method is used, the amount of the entire price is not known at the time of the conclusion of the contract, since the parties agree only on a rate for a construction unit, and the price to be paid is dependent upon the number of construction units used for the construction. The rate fixed for a construction unit would include the contractor's profit. The construction unit may be a quantity unit of materials (e.g. a ton of cement for concreting) or a time unit of construction (e.g. an hour spent by labour in excavation work) or a quantity unit of construction work (e.g. a cubic meter of reinforced concrete). Different construction units may be needed for different portions of the construction (e.g. material units for construction of buildings and time units for erection of equipment). Wherever feasible at the time of the conclusion of the contract, an estimate should be made of the number of units needed for the construction. In most cases the unit-price method is used only in combination with other pricing methods, since it is not suitable for pricing aspects of the construction which by their nature cannot be divided into several identical units. It is unsuitable, for example, for pricing a delivery of equipment when the items of equipment are dissimilar. This method is frequently used in respect of civil engineering. It is also useful where the quantity of materials or the quantity of work needed for a portion of the construction cannot be envisaged accurately at the time of the conclusion of the contract, and for this reason it is difficult for the parties to determine a lump-sum price. The unit price method may not be advisable in a contract in which it is difficult to control the quantities of units to be used for the construction. In a turnkey contract, in particular, the purchaser or his advisers may be unable to predict at the time of the conclusion of the contract even approximately the quantities involved, since the techniques of construction are usually left to the discretion of the contractor.

Accordingly, the purchaser may face a high degree of uncertainty as to the final price.

27. In applying the unit-price method, the risk of price increases is divided between the contractor and the purchaser. Since the price per construction unit is firm, the contractor bears the risk of an increase of the costs of materials and labour. The risk of an increase of price due to an increase in the quantities of units needed for the construction over the estimate made at the time of the conclusion of the contract is borne by the purchaser. Accordingly, the contractor should not have to add to his price an amount to protect himself against possible increases in quantities. The risk to the purchaser of an increase of price due to an increase of the quantities of units needed for the construction may be reduced if the parties provide a ceiling. Under this approach, the contract may provide that the purchaser would have to pay for quantities up to the amount of the ceiling, but that the contractor would have to bear the costs, or a specified percentage of the costs, of an increase of quantities beyond the ceiling. Since the price payable by the purchaser depends on the number of units needed for the construction, the parties should agree on clear rules on measurement in order to avoid disputes. Furthermore, it would be desirable to agree upon simple units which are easily measurable.

C. Bonus payment

28. In many cases the purchaser is interested in the completion of construction and the commencement of the operation of the works as early as possible. He may, therefore, be ready to pay a higher price in the form of a bonus payment if construction is successfully completed by the contractor prior to the date fixed for completion in the contract. The amount of the bonus may be established so as to represent a share of the estimated profit of the purchaser due to an earlier commencement of the operation of the works.

29. For the calculation of the bonus, the parties may determine such share of the estimated profit to be represented by a given sum of money for each day of earlier completion. This amount of money per day may then be expressed as a percentage of the price if the lump-sum method of pricing is used or as a percentage of the fee if the cost-reimbursable method of pricing is used. Representing the bonus payment as a percentage of the price or fee will enable the amount of the bonus to change if the price or fee changes (e.g. due to adjustment or revision of the price, or cost savings in comparison with the target cost). If the unit-price method is used, the amount may remain as a fixed amount per day of earlier completion. The bonus payment may be limited to a maximum amount. Furthermore, payment should be due only after a specified period of continuous operation of the works. This approach may deter the contractor from adopting methods of construction which are less time-consuming but which result in defective construction. The period of time for continuous operation of the works may commence to run at the time of take-over or acceptance

of the works by the purchaser (see the chapter "Completion, take-over and acceptance"). The contract may provide that delay in the successful completion of construction is to entail the payment by the contractor of liquidated damages or penalties (see the chapter "Liquidated damages and penalty clauses").

D. Currency of price

30. The currency in which the price is determined may create certain risks for the parties. If the price is determined in the currency of the contractor's country, the purchaser bears the consequences of a change in the exchange rate between this currency and the currency of his country. The contractor, however, will bear the consequences of a change in the exchange rate between the currency of his country and the currency of another country in which he has to pay some of the costs of construction (e.g. payments to subcontractors). If the price is determined in the currency of the purchaser's country, the contractor bears the consequences of a change in the exchange rate between this currency and the currency of his country. If the price is determined in the currency of a third country which the parties consider to be stable, each party bears the consequences of a change in the exchange rate between this currency and the currency of his country. Where a financing institution has granted the purchaser a loan for the construction of the works, the purchaser may prefer the price to be determined in the currency in which the loan is granted.

31. In stipulating the currency in which the price is to be paid, the parties should take into consideration foreign exchange regulations and international treaties which may mandatorily govern this question. In particular, they should consider treaties which may regulate payments between their respective countries and require that payment be made in a certain currency, or prescribe a certain form in which payments are to be effected (e.g. through a clearing arrangement between the two countries).

32. In cases where the parties use the lump-sum method or unit-price method, the risk borne by the contractor of changes in the exchange rate of the price currency will be reduced if the price is determined in the same currencies in which his payments of costs connected with the construction are expected to be effected. If this approach is adopted various portions of the price may be determined in different currencies. The contractor may also reduce the risk borne by him of changes in the exchange rate of the price currency by using the price currency under the works contract as the price currency under sub-contracts. However, the contractor will bear even in these cases the consequences of a change in the exchange rate of the price currency occurring in the period between the date when he bought the price currency to pay for costs incurred by him and the date when the price is paid by the purchaser in respect of the costs.

33. If the parties use the cost-reimbursable pricing method, the contract may stipulate that the costs should be reimbursed in the same currency as the fee. If this approach is adopted and costs are incurred in a currency other than the currency of the fee, the costs must be converted into the currency of the fee at an exchange rate. The contract should provide that the exchange rate prevailing at a specified place on a specified date is to be used. The date may be either the date on which the costs were incurred by the contractor or the date of payment of these costs by the purchaser to the contractor. It may alternatively be provided that the costs should be reimbursed in the same currency in which they are incurred by the contractor.

34. A purchaser from a country which has scarce foreign exchange resources may have an interest in ensuring that at least a part of the price is to be paid in the currency of his country. Thus, the currency of the purchaser may be used for payment in respect of those costs of construction which are incurred by the contractor in the purchaser's currency (e.g. payment of local labour or sub-contractors, or costs of accommodation of the contractor's personnel in the purchaser's country). Such arrangements may be made even in cases where the lump-sum pricing method is used in the contract. One approach may be to fix at the time of the conclusion of the contract the part of the price to be paid in local currency, on the basis of an estimate of the costs to be incurred by the contractor in local currency. Another approach is for the parties to provide a lump-sum in a foreign currency for the whole contract, but provide that costs incurred in the local currency will, after they are ascertained, be paid in the local currency and be deducted from the lump-sum at a specified exchange rate.

35. If the parties agree in the contract that the price fixed in a currency which the parties consider to be stable is to be paid at an agreed exchange rate in another currency, similar effects may in substance be achieved as by agreeing upon a currency clause (see para. 58, below). Restrictions imposed by the applicable law in respect of currency clauses may also apply to such provisions. In such cases, the parties should agree on the exchange rate which is to apply between the currency in which the price is determined and the currency in which the price is to be paid. The exchange rate should be defined by reference to the rate prevailing at a specified place on a specified date. If the price is determined on a lump-sum or unit-price basis, the contractor may prefer that the contract specify that the relevant date is to be the date when the payment of the price is actually effected. If the price is determined on a cost-reimbursable basis, one of the dates referred to in para. 33, above, may be specified.

36. It is not advisable to use clauses under which the price is denominated in several currencies, and either the debtor or the creditor is entitled to decide in which currency the price is to be paid. Under such a clause only the party having the choice is protected, and the choice may bring him unjustified gains.

E. Adjustment and revision of price

37. Due to the long-term and complex nature of a works contract, the parties frequently agree that the price may be adjusted or revised in specified situations, even if the price is a lump-sum or rates are determined for construction units. If the cost-reimbursable method of pricing is used, such an adjustment or revision is usually needed only in respect of the fee, since this method makes allowance for changes in construction costs which would otherwise need to be covered by an adjustment or revision clause.

38. The terminology used in the Guide distinguishes between "adjustment" and "revision" of the price. Adjustment refers to cases where the price may need to be changed because the nature or extent of construction work is changed. Revision refers to cases where, although the nature or extent of construction work is unchanged, the price may need to be changed because some economic or financial factors change after the conclusion of the contract so as to bring about a modification in the relationship between the values of the performances by the parties. For example, the costs of equipment or materials to be used by the contractor for construction of the works may change considerably from that envisaged at the time of the conclusion of the contract, or the value of the price currency may change in relation to other currencies after the conclusion of the contract. Adjustment or revision of the price may result in an increase or decrease of the price, although experience shows that an increase is more usual.

39. In providing for the adjustment or revision of the price, two approaches are possible. Under the first approach (which is dealt with in detail in the chapter "Settlement of disputes"), the contract would obligate the parties to agree upon an adjustment or revision. The contract would also provide that if they fail to do so, a court, or arbitrators, or a third person authorized by the parties is entitled to make the adjustment or revision. Under some legal systems, however, a court or arbitrators cannot, in substitution for the parties, modify any contractual provisions. Furthermore, even if this mechanism is permissible under the applicable law, there will be some uncertainty as to the extent of the adjustment or revision which might be made. Another approach (see subsections 1 and 2, below), may be to stipulate in the contract a method under which the price adjustment or revision, rather than being dependent upon the parties' agreement, is determined under some criteria specified in the contract. The latter approach is, in general, permissible under most legal systems and may be so formulated as to reduce uncertainty as to the extent of adjustment or revision. Thus, in regard to adjustment, the contract may provide that the price is to be adjusted by the inclusion of costs reasonably incurred by the contractor in specified circumstances. In regard to revision, the contract may provide that the price is to be revised in accordance with a specified mathematical formula or to make allowance for costs reasonably incurred.

1. *Adjustment of price*

40. The parties may wish to define carefully the circumstances in which the price determined in the contract is to be adjusted, since uncertainty as to the price will otherwise occur. In addition, a contract intended to be a lump-sum contract may tend to take on the nature of a cost-reimbursable contract if adjustment is possible in a wide range of circumstances.

41. An adjustment of the price is frequently needed if there is a variation of the construction. Adjustment of the price in such cases is discussed in the chapter "Variation clauses". In some situations, the contractor may be obligated to modify his performance even without the application of variation procedures. Some contractual provisions dealing with consequential price adjustment in those situations may be needed.

(a) *Incorrect data supplied by purchaser*

42. The parties may wish to agree that the price is to be adjusted in cases where, as a result of incorrect data supplied by the purchaser, additional or more expensive work has to be effected in comparison with the work reasonably envisaged at the time of the conclusion of the contract. However, the parties may wish to provide that the price is not to be adjusted if the contractor could reasonably have discovered the incorrectness of the data at the time of the conclusion of the contract. The price adjustment should cover the costs which the contractor reasonably incurred in order to rectify errors resulting from the incorrect data. The parties may also wish to provide that, in cases where the incorrectness of the data could not reasonably have been discovered at the time of the conclusion of the contract, the price is not to be adjusted unless the contractor subsequently discovered the incorrectness of the data at the time they could reasonably have been discovered and gave notification of the errors at that time to the purchaser.

(b) *Unforeseeable hydrological and sub-surface conditions*

43. The contractor is normally expected to inspect the site and its surroundings, to the extent practicable, before submitting a tender or negotiating a contract, and to base his negotiations on the findings made at such an inspection. It may, however, not be possible during such an inspection, even with the exercise of reasonable efforts, to discover certain physical conditions on the site, in particular hydrological and sub-surface conditions. Different approaches may be adopted in cases where during construction hydrological and sub-surface conditions are encountered which could not reasonably have been discovered by the contractor during his inspection. The risk of such conditions may be placed on the contractor, and he may be obligated to bear the extra costs incurred as a result of the unforeseeable conditions. An alternative approach may be to provide that the price is to be increased by the higher costs reasonably incurred by the contractor due to the conditions encountered.

(c) *Changes in local regulations*

44. Certain administrative rules or other rules of a public nature of the purchaser's or the contractor's country may mandatorily regulate certain aspects of the works or the methods of construction (e.g. in the interests of safety or for environmental protection; see the chapter "Applicable law"). If the portion of the construction already completed; or the construction to be effected, does not accord with such rules, whether existing at the time of the conclusion of the contract or enacted thereafter, changes in the construction may be needed. The contract should determine in what cases the price is to be adjusted.

45. The contract may provide that the contractor is not entitled to any adjustment of the price if the change is required as a result of a rule of the contractor's country. If the change is required as a result of a rule of the purchaser's country which existed at the time of the conclusion of the contract, the price should not be adjusted unless the purchaser had assumed in the contract an obligation to inform the contractor of all such rules and he had failed to satisfy his obligation. In the event of a failure by the purchaser to give information, the contract may provide that the price is to be increased by the higher costs reasonably incurred by the contractor in making the change.

46. The contract should specify who is to bear the risk of changes required by rules enacted in the purchaser's country after the conclusion of the contract. If the risk is to be borne by the purchaser, the price should be adjusted.

2. *Revision of price*

47. Under most legal systems, the principle of "nominalism" is applied to payments, i.e. an amount of currency to be paid is not automatically increased or decreased in case the value of the currency of payment has changed between the time the payment obligation was assumed and the time it has to be discharged. The value of currency may be subject to change between the time of conclusion of the contract and the time of payment in terms of its exchange rate in relation to other currencies. It may also be subject to change in terms of its purchasing power, with the result that the construction costs of the contractor may increase or, in exceptional cases, decrease. Many long-term contracts contain clauses directed at reducing the risk borne by the contractor of a change in the value of currency. Such clauses may provide for revision of the price on the basis of indices (see paras. 49-55, below) or on the basis of costs actually incurred (see paras. 56 and 57, below). However, contractual provisions concerning price revision due to a change in the value of the price currency are mandatorily regulated under many legal systems. The parties should, therefore, examine whether a clause which they intend to include in the contract is permitted under the law of the country of each party.

48. If the parties agree on a clause for price revision, it is advisable that such a clause should apply under the

contract only in cases where its application would result in a significant revision of the price, e.g. a revision exceeding a certain percentage of the price. In practice, the percentage stipulated ranges from 5 to 10 per cent. Price revision clauses are usually not used where the duration of construction as determined in the contract is less than 12 to 18 months from the coming into force of the contract.

(a) *Change in costs of construction*

(i) *Index clauses*

49. Index clauses usually link the amount of a lump-sum price to the levels of the prices of certain goods or services prevailing on a certain date, with the result that a change in the latter levels as indicated in specified price indices relating to those goods and services causes a corresponding change in the amount of the contract price. In works contracts, the contract price is usually linked to the levels of the prices of materials or services (e.g. labour) needed for the construction of the works. The purpose of index clauses is to reflect in the contract price changes in the costs of construction. A change in the agreed indices effects a change in the price. There is no necessity to examine the actual prices paid by the contractor during construction. Under the laws of some countries, index clauses are permitted only for the purpose of dealing with changes in construction costs occurring between the time the contract is concluded and its coming into force. Index clauses usually use an algebraic formula to determine how changes in the specified indices are to be reflected in the price.

50. The index clause should not apply to all portions of the price. Thus, it should not apply to the portion of the price paid in advance, since the advance payment is intended to be used by the contractor within a short period of time after the conclusion of the contract to cover the contractor's working capital and expenses in the initial stages of construction (see para. 65, below). It should also not apply to any portion of the price payable on the basis of the costs of construction prevailing at the time of construction. It may also be provided that the index clause is not to apply to changes in costs resulting from changes in taxes and customs duties payable by the contractor in the country of the site. In such cases the price may be revised on the basis of actual costs incurred by the contractor (see the chapter "Supplies of equipment and materials"). A ceiling on the extent to which the price may be increased or decreased through price revision may also be agreed upon.

51. In drafting an index clause, several indices, with different weightings given to each index, are often used in combination in a formula in order to reflect the contribution of different cost elements (e.g. materials or services) to the total cost of construction (i.e. separate indices reflecting the costs of different materials and services may be contained in a single formula). Separate indices will also have to be used when the sources of the same cost element are in different countries. Often, separate formulae, each with its own weightings, may be used for different construction operations. If, for

instance, the construction involves a number of dissimilar types of operations, such as excavation, concreting, brickwork, erection, and dredging, a single price revision formula may be difficult to draft and may produce inaccurate results. It may therefore be preferable to have a separate formula for each main item of the construction.

52. An index clause usually includes a certain percentage of the price (commonly 5-20 per cent) which is not subject to any revision under the clause. This percentage is intended to make allowance for the fact that some items may be paid for by the contractor at a lower price level than that reflected in the price index for those items. This percentage may also afford some protection against other inaccuracies resulting from the formula used in the clause. In addition, if the aim of the index clause is to protect the contractor only against higher costs of construction and not against inflation in general, this percentage may reflect the contractor's profit. The inclusion in the clause of such a percentage also creates an incentive for the contractor to try to protect himself against price increases (e.g. by making purchases at appropriate times).

53. Whether a price revision is needed should be determined at the time of each interim payment. In order to use the agreed indices, the contract should specify the dates to be used for comparing the levels of the indices. The contract may provide that the base levels of the indices are to be those existing on the date the contract was concluded. Alternatively, when the contract is concluded on the basis of tendering, the contract may provide that the base levels of the indices are to be those existing a specified number of days (e.g. 45 days) prior to the submission of the contract bid, or those existing a specified number of days prior to the closing date for the submission of bids. The contract should also provide that these base levels are to be compared with the levels of the same indices existing a specified number of days prior to the last date of the period of construction in respect of which payment is to be made. It may alternatively be provided that the base levels are to be compared with the levels existing a specified number of days prior to the date on which payment is due. If the contractor is in delay with completion of the construction, it may be provided that the levels of the agreed indices existing a specified number of days prior to the agreed date for performance should be used, if these levels are more favourable for the purchaser.

54. Several factors may be relevant in deciding on the indices to be used. The indices should be readily available (e.g. they should be published at regular intervals). They should be accurate. Indices published by recognized bodies (such as well-established chambers of commerce) or governmental or intergovernmental agencies may be selected. Where certain construction costs are to be incurred by the contractor in a particular country, it may be advisable to use the indices of that country.

55. In some countries, particularly in developing countries, the range of indices available for use in an index clause may be limited. If an index is not available for a material to be used in the construction, the parties may wish to use an index available in respect of another material. This material should be such that its price is likely to change in the same proportions and at the same times as the actual material to be used (e.g. because it is composed of the same raw material or can be used as an alternative to the actual material to be used). For example, if there is no wage index available, a consumer price index (or cost-of-living index) is sometimes used as a "proxy index".¹

(ii) *Documentary proof method*

56. In some contracts, a method often referred to as the documentary proof method is used to deal with changes which may occur after the conclusion of the contract in certain specified costs connected with the construction. The documentary proof method is based on the principle that the contractor is to be paid the amount by which actual costs connected with the construction exceed the costs upon which the calculation of the price determined in the contract was based, due to changes in the price levels which existed at the time of conclusion of the contract. This method contains disadvantages for the purchaser. Even if a lump-sum contract is agreed upon, the purchaser has to pay for all increases in construction costs due to

increases in the prices of equipment, materials, or labour. It may be difficult to ascertain at a later stage the costs upon which the calculation of the contract price was based. In addition, the contractor may have little incentive to keep down the costs of construction. The administrative work needed by the contractor to obtain documentary proof of the costs of construction, and by the purchaser to verify such costs, may be almost as extensive as under a cost-reimbursable contract. The documentary proof method should be used only in respect of portions of the price calculated on the basis of unstable cost factors where the index clause method (see paras. 49-55, above) cannot be used (e.g. where relevant indices are not available).

57. If the parties wish to use the documentary proof method, they should specify in the contract the portion of the price that is subject to revision (e.g. the portion payable during the course of construction). The contract should also identify the equipment, materials or services in respect of which revision of the price is to take place and separately state the amount of the costs relating to such equipment, materials or services upon which the contract price relating to such items was based. A revision of the price should occur not only in case of an increase but also in case of a decrease in costs. The contractor should be obligated to prove the costs actually incurred by him, and the contract should set forth procedures, similar to those which are to be used under a cost-reimbursable contract (see para. 14, above), for proving such costs. Furthermore, a revision of price should occur only by reason of a change in the costs actually incurred by the contractor due to a change in the prices of equipment, materials and services. A revision should not occur in respect of higher costs incurred due to an underestimation by the contractor of the scope of his construction obligations at the time of the conclusion of the contract. The contract may also provide that an increase of the actual costs over the estimated costs is to result in a price revision only if the increase exceeds a certain percentage of the estimated costs (see para. 48, above) and the contractor is to be entitled to only a certain percentage of the increase. Furthermore, the contract may require the contractor to purchase equipment or materials in respect of which price revision is permitted from approved sources, or after obtaining competitive bids.

(b) *Change in exchange rate of price currency in relation to other currencies*

(i) *Currency clause*

58. Under a currency clause, the price to be paid is linked to an exchange rate determined at the time of the conclusion of the contract between the price currency and a certain other currency (referred to as "the reference currency"). If this rate of exchange has changed at the time of payment, the price to be paid is increased or reduced in the ratio that the exchange rate determined at the time of the conclusion of the contract bears to the exchange rate prevailing at the time of actual payment. It may be desirable to adopt, for purposes of comparison, the time of actual payment rather than the time payment falls due. If the latter time

¹*Illustrative provision (index clause)*

"(1) The agreed price shall be revised if there is an increase or decrease in the costs of . . . (list materials or services to be covered by this clause). The revision shall be made by the application of the formula contained in the annex to this contract (see appendix to this chapter). The price, however, shall not be revised if the increase or decrease of the price resulting from the application of the formula does not exceed . . . per cent of the agreed price.

"(2) The base levels of the indices shall be those existing [at the time of the conclusion of the contract] [. . . days prior to the actual submission of the bid] [. . . days prior to the closing date for the submission of bids]. These levels shall be compared with the levels of the same indices existing [. . . days prior to the last day of the period of construction in respect of which payment is to be made] [. . . days prior to the date on which the payment claimed is due]. However, if the contractor is in delay in construction, the base levels shall, at the purchaser's option, be compared with the levels existing . . . days prior to the agreed date for performance.

"(3) The portion of the price subject to revision shall be . . . per cent of the price for the construction of . . . (indicate items of construction work to be covered by this clause) effected during the construction period in respect of which the payment is to be made.

"(4) No revision shall be made in respect of that portion of the price paid by the purchaser in advance.

"(5) Where any portion of the price to be paid to the contractor is to be determined on the basis of the actual costs incurred by the contractor in effecting performance, such portion of the price shall not be subject to revision.

"(6) If a dispute arises between the parties with regard to the weightings in the formula, the weightings shall be adjusted by [the engineer] [the arbitrators] [the court] if they have been rendered unreasonable or inapplicable as a result of changes in the nature and extent of construction.

"(7) For the purposes of this provision the indices published by . . . in . . . (indicate the country) shall be used. If these indices cease to be available, other indices shall be used if they can reasonably be expected to reflect price changes in respect of the construction costs covered by this clause."

is adopted, the contractor may suffer a loss if the purchaser delays in payment. The place whose exchange rate is to be later taken into consideration should be specified.

59. If a currency clause is to serve its purpose, the reference currency must be stable. The insecurity arising from the potential instability of a single reference currency may be reduced by reference to several currencies. The contract may determine an arithmetic average of the exchange rates between the price currency and several other specified currencies, and provide for revision of the price in accordance with changes in this average.

(ii) *Unit-of-account clause*

60. If a unit of account clause is used, the price is denominated in a unit of account composed of cumulative proportions of a number of selected currencies. The unit of account is usually defined in an international treaty or by an international organization, and the definition specifies the selected currencies and the relative weighting given to each currency making up the unit. In contrast to a currency clause in which several currencies are used, the weighting given to each selected currency of which the unit of account is composed is not the same, and greater weight is usually given to currencies generally used in international trade.²

61. The main advantage of using a unit of account as the currency unit with which the price currency is to be compared is that a unit of account is relatively stable, since the weakness of one currency is usually balanced by the strength of another currency of which the unit of account is composed. A unit of account clause will therefore give substantial protection against changes in exchange rates of the price currency in relation to other currencies.

62. In choosing a unit of account to be used in a clause, the parties should consider whether the relation between the price currency and the unit of account can be easily determined at the relevant times, i.e. at the time of the conclusion of the contract and at the time of payment. The unit of account defined by the International Monetary Fund as the Special Drawing Right (SDR) is sometimes used. The value of this unit of account in terms of a number of currencies is published periodically by the International Monetary Fund.

F. *Payment conditions*

63. Payment conditions express, in time sequence, the relationship of the obligations to be performed by the parties, i.e. the construction of the works by the

contractor and the payment of the price by the purchaser. Under many contracts, a lump-sum price payable is broken down and allocated against major items of the performance to be effected by the contractor (e.g. civil engineering, supply of equipment, transfer of technology). Under most payment conditions, the portions of the price in respect of such major items are payable at different stages in specified percentages, for example, in respect of the supply of equipment, 10 per cent as an advance payment (see paras. 65-66, below), 70 per cent during construction (see paras. 67-72, below), 10 per cent after take-over or acceptance of the works (see para. 73, below), and 10 per cent after expiry of the guarantee period (see paras. 74-75, below). These specified percentages may differ in respect of the different major items. Payment conditions usually also stipulate modalities of payment (e.g. a letter of credit, or the documents against which payment is to be made). The place of payment may also have significant legal consequences, in particular in determining which party bears the risk of changes in the value of currency during transfers of funds (e.g. where the place of payment is in the purchaser's country and the funds are transferred to the contractor's country), and in determining the applicable foreign exchange restrictions.

64. Payment conditions may influence the amount of the price. If the contractor has to finance the construction because the price is only payable upon the completion of construction, he will usually charge a higher price. On the other hand, if the contractor is paid more than the value of performances effected by him, he may have less incentive to continue to perform promptly. The purchaser, therefore, usually pays the contractor a substantial portion of the price progressively as various steps in the construction are completed. Payment conditions should contain ancillary provisions appropriate to the chosen pricing method. Thus, a cost-reimbursable contract should provide procedures for the verification of costs incurred by the contractor prior to payment, and a contract using the unit-price method should provide procedures for the measurement of construction effected.

1. *Advance payment*

65. An advance payment is usually required under a works contract to cover the contractor's working capital and expenses in the initial stages of the construction (e.g. for purchase of construction machinery, transport and accommodation of personnel, and initial purchases of equipment and materials). Such payment may also provide to the contractor some protection against loss in the event of a termination of the contract by the purchaser prior to the commencement, or at an early stage, of the construction. The purchaser is usually protected by a guarantee against failure by the contractor to repay the advance (see the chapter "Security for performance"). The amount of the advance payment may be calculated so as to cover the initial expenses of the contractor which are anticipated.

²*Illustrative provision*

"The price is agreed upon subject to the condition that . . . (indicate a unit of account) is equal to . . . (indicate unit or units of the price currency). Should this relationship have changed at the time of the actual payment of the price by more than . . . per cent, the price to be paid shall be increased or decreased so as to reflect the new relationship between the unit of account and the unit of the price currency."

66. The advance payment is usually to be directly remitted by the purchaser to a bank designated by the contractor, upon the provision by the contractor of the performance and repayment guarantees (see the chapter "Security for performance").

2. *Payment during construction*

67. Payment conditions usually provide for the payment of a substantial portion of the price in accordance with the progress of construction. Sometimes such payment is also linked to the manufacture of equipment. The amount to be paid during construction should be determined taking into consideration the nature of the construction effected and the pricing method adopted.

68. One approach to determining the time and extent of payment may be to identify specific portions of the construction (e.g. excavation, or construction of the foundations), and provide that specified sums are to be payable upon completion of those portions. An alternative approach frequently used is to provide that the contractor is entitled to receive progress payments for the construction completed within specified periods of time (e.g. every month), the extent of the payment depending upon the extent of construction effected within that period.

69. Equipment and materials supplied by the contractor may be paid for after their incorporation in the works, as part of the construction effected, under one or other of the approaches described in the preceding paragraph. The parties may, however, agree on another approach, particularly in cases where the equipment and materials are taken over by the purchaser after their delivery and are in his possession until their use for construction. In these cases the portion of the price in respect of such equipment and materials may be payable against documents proving that they have been handed over to the first carrier for transmission to the purchaser, or that they have been delivered to the site (see the chapter "Supply of equipment and materials").

70. Since payments during construction are to be effected in respect of construction already completed, the parties should clearly agree upon the procedures (e.g. measurement) for determining such completion. The purchaser may wish to authorize the consulting engineer to check the extent of the completed construction. To obtain a progress payment, the contractor may be required under the contract to submit to the consulting engineer at the end of each payment period certain documents supported by a detailed report concerning the construction completed in the relevant payment period. Payments may be effected on the basis of interim certificates issued by the consulting engineer or the purchaser.

71. The contract should specify the documents which the contractor is obliged to submit to obtain payment, such as his invoice, bills of lading, certificates of origin, packing lists, and inspection certificates. The documents to be required may depend upon the time and

manner of performance. Different documents may be required in respect of supplies of equipment, materials, or services. The documents required may also differ depending on the method of pricing used by the parties (e.g. if the cost-reimbursable method is used, documents proving that the contractor solicited a specified number of offers for the sale of equipment and materials to be used in the construction, and accepted the best offer).

72. The contract should specify a period of time within which an interim certificate for payment is to be issued by the consulting engineer or the purchaser and a period of time after issuance of this certificate within which payment is to be effected by the purchaser. The portion of the price due under the certificate may be payable upon submission of the certificate to a bank to be specified in the contract. In case of a failure to issue the certificate even though the event entitling the contractor to payment has occurred, or to pay the amount due under the certificate, the contractor should be entitled to claim payment in dispute settlement proceedings (see the chapter "Settlement of disputes").

3. *Payment after take-over or acceptance of works*

73. Certain percentages of some portions of the price (e.g. for supply of equipment and materials, civil engineering, erection, or transfer of technology) may be payable only upon proof that construction has been successfully completed (e.g. after acceptance of the works). The contract should stipulate that the purchaser is to pay such portions of the price within a certain period of time after such proof (e.g. within two weeks after successful performance tests have been conducted or an acceptance protocol has been signed; see the chapter "Completion, take-over and acceptance"). In some cases a portion of the price may be made payable within a specified period of time after take-over of the works (see the chapter "Completion, take-over and acceptance").

4. *Payment after expiration of guarantee period*

74. To protect the purchaser against the consequences of defective construction by the contractor, the contract may provide that a certain percentage of the price is payable only after expiry of the guarantee period (see the chapter "Failure to perform"). In fixing the percentage to be paid after expiry of the guarantee period, the parties should take into account the other securities which are available to the purchaser in case of the discovery of defects during the guarantee period. If the purchaser is sufficiently protected by a performance guarantee (see the chapter "Security for performance"), it may be provided that the entire price is payable at the time of the acceptance of the works.

75. The contract should specify a period of time commencing to run on the expiry of the guarantee period within which the purchaser is obliged to pay the portion of the price then outstanding. However, if any

defects are discovered and notified within the guarantee period, the purchaser should be entitled to retain from the portion of the price then outstanding an amount which is sufficient to compensate him for the defects. This right of retention should exist until the contractor cures the defects and pays any damages to which the purchaser may be entitled.

5. Credit granted by contractor or contractor's country

76. In most cases the construction of works is financed by a financing institution on the basis of a loan granted by it to the purchaser. However, in some cases where the contractor has at his disposal ample financial resources, and the works to be constructed is not large, the contractor may be ready to grant a credit to the purchaser in respect of a portion of the price. In such cases, the portion of the price covered by the credit is usually to be repaid by instalments within a specified period of time after take-over or acceptance of the works by the purchaser.

77. Where the contractor grants such a credit to the purchaser, some of the issues which are settled in a separate loan agreement when a loan is granted by a financing institution (e.g. security for repayment of the loan by the purchaser and interest payable on the loan) need to be settled in the works contract.

78. The construction of works is sometimes financed by using a credit granted by the Government of the contractor's country to the Government of the purchaser's country. In these cases the parties should, when drafting the payment conditions, take into consideration the provisions of the agreement between the Governments and the rules which may be issued in the purchaser's country in connection with the implementation of the agreement (e.g. conditions under which the credit may be used for construction).

Appendix

Formula for revising agreed price*

The price revision envisaged in clause ... of this contract shall be made by the application of the following formula:

$$P_1 = \frac{P_o}{100} \left(a + b \frac{M_1}{M_o} + c \frac{N_1}{N_o} + d \frac{O_1}{O_o} + e \frac{W_1}{W_o} \right)$$

where:

P_1 = Price payable under clause ...;

P_o = Initial price to which clause ... is to be applied;

M_1, N_1, O_1, W_1 = Index levels for the various cost elements (e.g. materials and services) covered by

clause ... prevailing at the relevant time before payment (see paragraph (2) of the illustrative provision);

M_o, N_o, O_o, W_o = Base index levels of the same cost elements prevailing at the time of the conclusion of the contract, or at an agreed point of time prior to the conclusion of the contract (see paragraph (2) of the illustrative provision);

a = Percentage of price excluded from price adjustment (see paragraph (3) of the illustrative provision);

b, c, d, e = Weightings given to the various indices, reflecting the proportions in which the various cost elements contribute to the costs of construction covered by the index clause;

$a + b + c + d + e = 100$.

[A/CN.9/WG.V/WP.15/Add.2]

Consulting engineer

Summary

A consulting engineer as dealt with in this chapter is an engineering firm engaged by the purchaser to render advice and technical expertise to the purchaser, to take certain actions under the works contract on behalf of the purchaser, or to exercise certain independent functions under the contract (paragraphs 1 and 2). The works contract should set forth clearly the authority and functions of the consulting engineer to the extent that they affect the rights and obligations of the contractor (paragraph 3). The contract need not authorize or regulate the rendering by the consulting engineer of advice and technical expertise to the purchaser (paragraphs 4 and 5). It should, however, set forth any authority of the consulting engineer to act on behalf of the purchaser, including any limitations on such authority (paragraphs 6 and 7).

In some works contracts the parties may wish to provide for a consulting engineer to exercise certain functions independently, rather than for or on behalf of the purchaser. Such independent functions may include resolving on-site technical questions arising during the course of construction, certifying the existence of certain facts giving rise to rights and obligations under the contract or determining the existence of such rights and obligations, or deciding upon disputes between the parties. The parties may consider it desirable that the consulting engineer not be authorized to decide upon disputes arising from services supplied or work performed by him (paragraphs 8 to 10).

The contract should establish the extent to which an act or decision of the consulting engineer pursuant to an independent function is to be considered binding on the parties. In this respect the contract should provide that all acts or decisions taken by the consulting engineer pursuant to his independent functions are subject to review in arbitral or judicial proceedings. It would be desirable for the contract to provide that an

*This formula is adapted from a formula set forth in *ECE General Conditions for the Supply and Erection of Plant and Machinery for Import and Export*, No. 188A (United Nations publication, Sales No. 1957:11.E/Mim.3).

act or decision of the consulting engineer which is subject to review must be complied with until it is modified or reversed in arbitral or judicial proceedings, and that the contractor is entitled to compensation for additional work performed or costs incurred by him as a result of conforming to or complying with the act or decision. The parties might, however, consider whether the arbitral or judicial tribunal should be given discretion to decide that an act or decision of the consulting engineer is not to be conformed to or complied with pending the outcome of the proceedings (paragraphs 12 and 13).

The consulting engineer usually should be named in the invitation to tender and in the works contract. The parties may also wish to consider whether, in the event that a consulting engineer exercising independent functions must be replaced while the construction is in progress, the selection of the new consulting engineer should be left exclusively to the purchaser, or whether the contractor should be able to participate in the selection of a new consulting engineer proposed by the purchaser. If the contractor is to be entitled to participate in the selection of a new consulting engineer, the contract should provide for appropriate procedures to enable him to do so (paragraphs 14 to 16).

It may be desirable for the contract to provide that the consulting engineer may not delegate his authority to exercise independent functions to a third person who is not his employee without the written consent of both parties (paragraphs 17 and 18).

The parties should agree upon the extent to which the consulting engineer should have access to information, the site, places of manufacture of equipment, materials and supplies to be incorporated in the works, the plant under construction and the completed works, in order to enable him to perform his functions effectively (paragraph 19).

* * *

A. General remarks

1. The purchaser will require the services of an engineer from the early stages of an industrial works project. The services which an engineer might render prior to the conclusion of the works contract may include, for example, making feasibility and other pre-contract studies, preparing the design, drawings and specifications for portions or all of the works, preparing tender and contract documents, handling tendering procedures and advising the purchaser on various other technical matters. After the contract has been entered into, the purchaser will continue to rely on an engineer to provide advice and technical and managerial expertise in connection with the construction of the works. In some cases, an engineer may be authorized to take on behalf of the purchaser various actions provided for by the works contract. In addition, an engineer may be authorized to exercise certain independent functions which directly affect the rights and obligations of both parties to the contract.

2. In some cases a purchaser may have on his own staff engineers who are capable of supplying the various services which the purchaser will require in connection with the construction of the works. In other cases, however, the purchaser's staff may not be able to supply all the engineering services required, and the purchaser will have to engage an engineering firm in order to obtain such services. Such a third-party firm is referred to in this chapter as the "consulting engineer". Even in cases where the purchaser's in-house engineering capabilities are sufficient, the purchaser may wish to engage a consulting engineer in order to supplement these capabilities, for example, where a consulting engineer has particular expertise or experience in the implementation of similar projects. In addition, if the works contract provides for certain independent functions to be exercised by an engineer, the contract will usually require that these functions be exercised by a consulting engineer rather than by engineers on the staff of the purchaser.

3. This chapter deals with provisions in the works contract with respect to the authority and functions of a consulting engineer who is engaged by the purchaser. While such authority and functions will be established by the contract between the consulting engineer and the purchaser, the works contract should set forth clearly such authority and functions to the extent that they affect the rights and obligations of the contractor. This will enable the contractor to know when he may rely on or must give effect to acts or decisions taken by the consulting engineer. In addition, doubts as to whether such acts or decisions are within the scope of the authority of the consulting engineer will thereby be avoided.

B. Authority and functions of consulting engineer

1. Rendering services to purchaser

(a) Rendering advice and technical expertise to purchaser

4. With any type of works contract, it is important for the purchaser to possess or to have access to the technical expertise necessary to satisfy himself that the design and specifications for the works meet his requirements and that the work is progressing satisfactorily, and to take the various decisions and exercise the other functions which are within his province under the contract. For example, he must be able to approve the construction time schedule submitted by the contractor, monitor the progress of the construction, assess the performance of the contractor in order to determine whether to make payments claimed to be due by the contractor, evaluate delays or defects in construction and determine what measures to take in that regard, order variations or decide upon variations proposed by the contractor, decide upon sub-contractors proposed by the contractor, deal with exempting impediments or hardship situations and evaluate the results of inspections and tests. In certain contracts it may be necessary for the purchaser to contract for supplies and equipment, check and evaluate drawings submitted by the

contractor, evaluate guarantees proffered by contractors and suppliers and schedule and co-ordinate work performed by various contractors. In a cost-reimbursable contract, it will be necessary for the purchaser to ascertain whether the costs of items for which the contractor seeks reimbursement are reasonable and correct. In a unit-price contract, the purchaser will have to verify the amount of units of materials or labour used. The purchaser will often engage a consulting engineer to advise him and render technical expertise as to all these matters.

5. Since the mere rendering by the consulting engineer of such advice and expertise to the purchaser will not directly affect the contractor's contractual rights and obligations, there is no need for the works contract to authorize or regulate the exercise of such functions by the consulting engineer. On the other hand, it may be desirable for the contract to contain provisions designed to enable or facilitate the exercise of such functions, such as provisions granting the consulting engineer access to the site or place of manufacture or information necessary to monitor the progress of the work and exercise his other functions (see para. 19, below).

(b) *Acting on behalf of purchaser*

6. In addition to rendering advice and technical expertise to the purchaser, a consulting engineer may be authorized to take, on behalf of the purchaser, some or all of the acts of the nature referred to in para. 4, above. In such cases, since the acts by the consulting engineer may directly affect the contractor's contractual rights and obligations, the contract should set forth the authority of the consulting engineer to take such acts, including any limitations upon such authority (e.g. any restrictions on the authority of the engineer to order or agree to variations on behalf of the purchaser). In addition, the contract should oblige the purchaser to notify the contractor in writing of any addition to or change in the authority of the consulting engineer effected after the contract has been entered into. The types of acts to be taken by the consulting engineer on behalf of the purchaser will vary depending upon the nature of the contract. In a turnkey contract, the acts to be taken by the consulting engineer will normally be more limited than under less comprehensive types of contracts.

7. The contract should also specify any authority of the consulting engineer to communicate with the contractor on behalf of the purchaser. For example, the contract may provide for communications between the purchaser and the contractor dealing with matters within the authority of the consulting engineer to be transmitted through the engineer.

2. *Independent functions*

8. In some works contracts, the parties may wish to provide for a consulting engineer to exercise certain functions independently rather than for or on behalf of the purchaser. Such independent functions may be of

various types. For example, the parties may consider it desirable for a consulting engineer to be on site to be able expeditiously to answer technical questions which arise during the course of construction, to resolve discrepancies, errors or omissions in the drawings or specifications or to interpret technical provisions of the contract. In addition, the parties might in some cases wish to authorize the consulting engineer to certify the existence of certain facts which would give rise to rights or obligations under the contract, or also to determine the existence of such rights or obligations. The following are examples of such functions:

Certify the entitlement of the contractor to payments claimed by him;

Certify the existence of a delay or other failure to perform;

Certify the occurrence and duration of events asserted to be exempting impediments, or also determine that such events do constitute exempting impediments (see the chapter "Exemptions");

Certify the existence of circumstances asserted as grounds to justify suspension of construction or order suspension of construction (see the chapter "Suspension of construction");

Certify whether mechanical completion tests or performance tests are successful or whether additional or modified tests should be performed (see the chapter "Inspection and tests");

Certify the existence of circumstances asserted as grounds to justify termination of the contract (see the chapter "Termination");

Certify the existence of circumstances asserted by the contractor as a ground for objecting to a variation ordered by the purchaser, or decide whether a variation should be performed (see the chapter "Variation clauses");

Determine the consequences of variations upon the contract price and the time for completion by the contractor (*ibid.*);

Certify the existence of circumstances asserted as giving rise to rights under a hardship clause, or determine that a situation of hardship exists (see the chapter "Hardship clauses");

Assist the parties in re-negotiations under a hardship clause, or adapt the contract if the parties to re-negotiations are unable to agree on an adaptation (*ibid.*);

Determine the amount of additional time for performance to which the contractor is entitled as a result of a suspension of construction by the purchaser or for other reasons (see the chapters "Suspension of construction" and "Completion, take-over and acceptance").

9. The contract might provide for matters such as those referred to in the previous paragraph to be submitted directly to the consulting engineer for his action, either in the context of a dispute between the parties or otherwise. For example, the contract might provide for a claim by the contractor for payment to be

submitted to the consulting engineer for his certification, together with the bills or accounts in support of the claim. Or, the contract might authorize the consulting engineer to resolve a dispute between the parties as to whether the contractor is entitled to payment (unless the dispute arises from a failure of the consulting engineer to certify payment claimed to be due by the contractor; see para. 10, below). The parties might also in some cases wish to authorize the consulting engineer to decide upon disputes between the parties as to matters additional to those referred to in the previous paragraph. Reference of disputes to the consulting engineer could provide a more expeditious means for dealing with the disputes than referring them directly for resolution by arbitration or judicial proceedings. It would enable the disputes to be dealt with by someone who is involved in and knowledgeable about the project, and who would be aware of most or all of the relevant correspondence and arguments.

10. The parties may wish to consider whether the consulting engineer should be authorized to decide upon all disputes between the parties concerning the project, or only those disputes involving matters within the competence and expertise of the consulting engineer, i.e. disputes concerning technical matters relating to the scope, quality and construction of the works. In the latter event, the parties may wish to specify more precisely the types of disputes upon which the consulting engineer may decide. The parties may consider it desirable, however, for the consulting engineer not to be authorized to decide upon disputes arising from services supplied or work performed by him (e.g. disputes concerning a design supplied by him) or from actions which he has taken pursuant to the contract or which, although authorized to take, he has failed to take (e.g. disputes arising from his issuance or failure to issue a certificate of payment).

11. If the consulting engineer is to be authorized to exercise independent functions, even though he may be selected or engaged by the purchaser it may be desirable for the contract to provide that these functions are to be exercised impartially as between the purchaser and the contractor. Moreover, the parties may wish to provide in the contract that, in the exercise of independent functions other than those that involve simply finding or certifying the existence of facts or events, the consulting engineer is to apply and give effect to the provisions of the contract and not simply to act in accordance with his own conception of fairness and without regard to the provisions of the contract.

12. The contract should establish the extent to which an act or decision of the consulting engineer pursuant to an independent function is to be considered binding on the parties. In this respect the contract should provide that any such act or decision may be referred by either party for review in arbitral or judicial proceedings. The contract might also provide that any matter upon which the consulting engineer has failed to take an act or decision within a specified period of time after having been requested by a party to do so may be referred to such proceedings, unless the contract pro-

vides another means of dealing with the matter (e.g. by providing that a certification is deemed to have been made).

13. It would be desirable for the contract to provide that an act or decision of the consulting engineer which is subject to review must be conformed to or complied with until it is modified or reversed in arbitral and judicial proceedings, in order to avoid lengthy and costly interruptions in the construction. However, the contract should entitle the contractor to be compensated by the purchaser for any additional work performed or costs incurred by the contractor, not otherwise provided for in the contract, as a result of conforming to an act or complying with a decision of the consulting engineer, even if the act or decision is subsequently modified or reversed in arbitral or judicial proceedings. The parties might consider whether it is desirable to provide that the arbitral or judicial tribunal may, at its discretion, decide that an act or decision of the consulting engineer is not to be conformed to or complied with pending the outcome of the proceedings.

C. Selection and replacement of consulting engineer

14. When a consulting engineer has been retained to render pre-contract services to the purchaser (see para. 1, above), he will normally continue as the consulting engineer under the contract, even if he is to perform independent functions. The consulting engineer usually should be named in the invitation to tender so that tendering contractors are aware that he must be accepted as the consulting engineer under the works contract. The consulting engineer should also be named in the works contract.

15. The parties may wish to consider whether, in the event that a consulting engineer must be replaced while the construction is in progress, the selection of the new consulting engineer should be left exclusively to the purchaser or whether the contractor should be able to participate in the selection of a new consulting engineer proposed by the purchaser. If the new consulting engineer is only to render technical advice and assistance to the purchaser or to act on behalf of the purchaser, he should be chosen by the purchaser alone. If he is to exercise independent functions, the contract might provide either that the new consulting engineer is to be chosen by the purchaser alone, or that the contractor is entitled to participate in the choice. It may be noted, however, that some international lending agencies will not permit the contractor to participate in the choice in projects which are financed by them.

16. When a new consulting engineer who is to act on behalf of the purchaser or is to exercise independent functions is to be chosen by the purchaser alone, the contract should obligate the purchaser to deliver to the contractor written notice of the name and address of the new consulting engineer. Where the contractor is to participate in the selection of a new consulting engineer, the contract should require the purchaser to inform the contractor of the proposed new consulting engineer and seek the contractor's approval thereof. The purchaser

should be permitted to engage the proposed new consulting engineer if within a specified period of time after delivery of the notice the contractor does not deliver to the purchaser an objection to the proposed new consulting engineer, specifying the grounds for his objection. The contract may further provide that any objection by the contractor to the new consulting engineer proposed by the purchaser must be based upon reasonable grounds. If the contractor objects to the new consulting engineer proposed by the purchaser, but the purchaser is of the view that the contractor's objection is not based upon reasonable grounds, the dispute should be resolved under the dispute settlement machinery contained in the contract. If the contractor's objection is found not to be based upon reasonable grounds, the purchaser should be entitled to engage the new consulting engineer proposed by him. On the other hand, if the contractor's objection is found to be reasonable, the purchaser should be obliged to propose another consulting engineer.

D. Delegation of authority by consulting engineer

17. In cases where the consulting engineer is to exercise independent functions, the parties may consider it desirable to provide that he may not delegate his authority to exercise such functions to another consulting engineer who is not his employee without the written consent of both parties. Such a restriction should be contained both in the purchaser's contract with the consulting engineer and in the works contract. Similarly, in cases where the consulting engineer is to act on behalf of the purchaser, any limitations which the purchaser may wish to impose upon the ability of the consulting engineer to delegate his authority to exercise such functions should be contained both in the purchaser's contract with the consulting engineer and in the works contract, so that the contractor is made aware of such limitations. However, the ability of the consulting engineer to allocate his authority among individual engineers employed by him should not be limited. For example, a consulting engineer may designate a site representative to exercise day-to-day activities but may deal with more substantial matters at a higher level within the management hierarchy of the consulting engineering firm.

18. The contract might also provide that any acts of a consulting engineer to whom authority has been delegated with the appropriate consent by the consulting engineer named in or engaged under the provisions of the contract shall have the same effect as if the acts had been taken by the original consulting engineer. It might also provide that the original consulting engineer may take any act which the consulting engineer to whom authority has been delegated is authorized to take but has not taken (e.g. to order the cure of defects).

E. Information and access to be provided to consulting engineer

19. In order to enable the consulting engineer to exercise his functions effectively, he may need to have

various types of information, as well as access to the site, access to the places of manufacture of equipment, materials and supplies to be incorporated in the works, and access to the plant under construction and to the completed works. The parties should agree upon the extent to which the contractor is obligated to provide such information or grant such access to the consulting engineer. He should normally have as a minimum the degree of access which is accorded to the purchaser under the contract.

[A/CN.9/WG.V/WP.15/Add.3]

Transfer of technology

Summary

The purchaser will require a knowledge of the industrial processes necessary for production embodied in the works, and require the technical information and skills necessary for the operation, maintenance and repair of the works. The communication to the purchaser of this knowledge, information and skills is often referred to as the transfer of technology (paragraph 1).

Different contractual arrangements can be entered into for the construction of the works and the transfer of technology (paragraph 2). The transfer of technology itself may occur in different ways. It may occur, for example, by acquiring an understanding of the nature and functioning of the works (paragraph 3), through the licensing of industrial property (paragraph 4) or the communication of confidential know-how (paragraph 5). The information and skills necessary for the operation, maintenance and repair of the works may be communicated through documents, or through the training of the purchaser's personnel (paragraph 6).

The Guide does not attempt to deal comprehensively with the licensing of industrial property or the communication of know-how, and this chapter merely notes certain issues which the parties should address when a works contract involves industrial property or know-how (paragraph 7). In drafting contract provisions relating to the transfer of technology, the parties should take account of mandatory legislation regulating such transfer which may be in force in the purchaser's and contractor's countries (paragraph 8).

Some issues which the parties should address are common both to licensing and know-how provisions. Thus the technology to be transferred should be carefully described (paragraph 9). When agreeing upon restrictions to be imposed on the purchaser's use of the technology, the parties should take account of legislation which may mandatorily regulate such restrictions (paragraph 10).

The guarantees to be given by the contractor may depend on the contractual arrangements in question, and may range from an unqualified guarantee that the works will operate in accordance with specified para-

meters to a qualified guarantee that the works will operate in accordance with specified parameters provided certain conditions are satisfied (paragraphs 11 and 12). Special forms of payment of the price (e.g. payment of royalties) have evolved with regard to licensing and know-how provisions (paragraphs 13 to 15).

The parties may wish to include in the contract an undertaking by the contractor that the industrial property or know-how transferred does not infringe the rights of a third party. The contract should specify the remedies which are to be available in the event that such an infringement occurs (paragraphs 16 and 17).

An issue special to know-how provisions is confidentiality. The contractor will wish to obligate the purchaser to maintain confidentiality in respect of the know-how communicated. The extent to which confidentiality is imposed should be clearly defined in the contract. Furthermore, the contract should provide for situations in which the purchaser may reasonably need to disclose the know-how to third parties (paragraphs 18 and 19).

When technical information and skills are conveyed through documents, the contract should address several issues in regard to the documents. Such issues include the description of the documents to be supplied, demonstrations needed to explain the documents, and the times at which the documents are to be supplied (paragraphs 20 to 22).

The most significant method of conveying technical information and skills is by the training of the personnel of the purchaser. The contractor should be obligated to supply the purchaser with a statement of the personnel requirements for the operation, maintenance and repair of the works. In the light of this statement, the purchaser should determine his training requirements. The contract should clearly determine the training obligations of the contractor (paragraph 23). Issues to be dealt with in the contract will include the categories and numbers of trainees, their qualifications, the procedure for selecting the trainees, and the places at which they are to receive training (paragraphs 24 and 25).

The contractor should be obligated to supply to the purchaser a training programme which the contractor considers to be adequate. The contract should also fix the payment conditions relating to the training. However, for practical reasons, some issues relating to the training programme may need to be settled after the conclusion of the contract (paragraphs 26 to 28).

* * *

A. *General remarks*

1. The works to be constructed will embody various industrial processes necessary for production by the works. The purchaser will require a knowledge of the use and application of these various processes. The purchaser will also wish to acquire the technical information and skills necessary for the operation,

maintenance and repair of the works. The communication to the purchaser of this knowledge, information and skills is often referred to as the transfer of technology.

2. It may be noted that different contractual arrangements can be entered into for the construction of the works and the transfer of technology (see chapter II, "Choice of contract type"). The purchaser may select a contractor who is able to supply the technology to be embodied in the works, as well as to construct the works. The purchaser will then usually enter into one works contract with that contractor, which will provide for the transfer of the technology and for the construction of the works. It is also possible for the purchaser to enter into a works contract under which the contractor supplies the technology and constructs that portion of the works which is to embody the technology, and to enter into other contracts with other contractors for the construction of other portions. The purchaser may also enter into one contract for the supply of technology and into a separate works contract for the construction of the works embodying that technology.

3. The transfer of technology may occur in different ways. In many cases a purchaser will acquire a knowledge of the various industrial processes used in the works through acquiring an understanding of the working of the machinery and equipment installed in the works and of the functioning of the works.

4. The transfer of technology may also occur through the licensing of patents or other forms of industrial property. Most legal systems provide for the registration, subject to certain conditions, of industrial processes which are upon registration recognized and protected as industrial property in the country in which the registration takes place. A common form of industrial property consists of patents, although other forms of industrial property may also be recognized and protected. The owner of the industrial property obtains the exclusive right to exploit the processes which are the subject of the industrial property. A contractor who has registered industrial processes as patents may, however, license the patents to the purchaser (i.e. permit the purchaser, subject to the conditions of the licence, to use the processes in the works in return for a royalty). The product resulting from the working of the patent may carry a trademark, and a licensing of the trademark will often accompany the licensing of the patent.

5. The contractor, however, may not have wished, or may have been unable, to protect the industrial processes through registration in accordance with the law relating to industrial property. He may, instead, keep this knowledge confidential. In such cases, the transfer of technology may occur through the communication of this knowledge (generally called know-how) to the purchaser. Such communication is usually subject to conditions as to the maintenance of confidentiality by the purchaser (see paras. 18 and 19, below).

6. The information and skills necessary for the operation, maintenance and repair of the works may be

communicated by the contractor through documents, e.g. operating manuals (see paras. 21 and 22, below). They may also be communicated through the training of the personnel of the purchaser. It may be noted that the different ways in which technology is transferred, referred to in this and the three previous paragraphs, may be combined.

7. The Guide does not attempt to deal comprehensively with contract negotiation and drafting relating to the licensing of industrial property, or the communication of know-how, as this subject has already been dealt with in detail in publications issued by certain United Nations bodies.¹ This chapter merely notes certain major issues which the parties should address when a works contract contains provisions relating to the licensing of industrial property or the communication of know-how.

8. In drafting their contract provisions relating to the transfer of technology, the parties should take account of legislation mandatorily regulating such transfer which may be in force in the purchaser's and the contractor's countries.² Under some legislation, contracts involving the transfer of technology have to be registered with a governmental institution and require its approval. Legislation in some countries may prohibit or restrict the transfer of certain kinds of technology. Legislation may also require each element of the technology to be separately priced, or it may regulate the extent of the price payable or the manner of payment (e.g. the manner in which royalties may be calculated). Tax legislation may also affect the drafting of the contract (e.g. by requiring the parties to determine which party is responsible for the payment of tax on income arising from the transfer of technology).

B. Issues common both to licensing and to know-how provisions

1. Description of technology

9. The parties should carefully describe the technology which is to be transferred.³ Such description may be by reference to documents reflecting the technology (e.g. the patent documents). A precise and comprehensive description may in particular be important when the separate contracts approach is used and contractors

other than the one supplying the technology are to prepare designs or manufacture equipment and machinery to enable the technology to be used in the works.

2. Conditions restricting purchaser in use of technology

10. The contractor may sometimes seek to impose certain restrictions on the purchaser's use of the technology, or the products or outputs produced using the technology. Some of these restrictions are mandatorily regulated under many legal systems, and the parties should take into account the laws of the country of each party before agreeing on such restrictions. The extent to which such restrictions may be permissible in the contract are being negotiated at the sessions of the United Nations Conference on an International Code of Conduct on the Transfer of Technology.

3. Guarantees⁴

11. The guarantees to be given by the contractor in regard to technology supplied by him may depend on the nature of the contractual arrangements. If the contractor, in addition to supplying the technology, also supplies the design for the plant which is to use the technology, and the machinery and equipment for the plant, he may be required to guarantee that the works will operate in accordance with specified parameters. The type of parameters used (e.g. product quality, production capacity, utilities consumption, catalyst consumption, or quantity of effluent) will depend on the nature of the works.

12. In some cases, however, contractual arrangements are adopted whereby the contractor supplies the technology, part of the design, and some of the machinery and equipment necessary for the utilization of the technology, while other contractors supply the rest of the design and other machinery and equipment. In such cases, the contractor may be unwilling to give without qualifications a guarantee of performance similar to that noted in the previous paragraph. He may in such cases be required to give a guarantee that the use of the technology will result in the operation of the works in accordance with certain specified parameters, provided the technology is utilized and the works is constructed in accordance with conditions specified by the contractor (e.g. use of certain construction methods, standards, components and raw materials; use of a certain design for layout of the works; provision of certain operating conditions, such as the temperature in certain areas of the works). If the contractor is supplying the technology and constructing the major portion of the works, he may be prepared to accept a different approach under which he gives a guarantee that the works will operate in accordance with the parameters specified in the

¹The drafting of agreements for the licensing of industrial property and the communication of know-how is dealt with in detail in *Licensing Guide for Developing Countries* (Geneva, WIPO, 1977) (hereinafter referred to as the WIPO Guide). The main issues to be considered in drafting such contracts are set forth in *Guidelines for Evaluation of Transfer of Technology Agreements* (ID/233) (hereinafter referred to as the UNIDO Guidelines) and in *Guide for Use in Drawing up Contracts relating to the International Transfer of Know-how in the Engineering Industry* (ECE publication No. TRADE/222/Rev.1) United Nations publication, Sales No. E.70.E.15. Another relevant publication is the *Handbook on the Acquisition of Technology by Developing Countries* (UNCTAD/TT/AS/5) (United Nations publication, Sales No. E.78.II.D.15).

²See WIPO Guide, part II, section U, "Approval of government authorities", and section O, 7, "Taxation".

³See WIPO Guide, part II, section D, 1, "Identification and description of the basic technology".

⁴See WIPO Guide, part II, section G, 4, "Guarantee of know-how", and UNIDO Guidelines, chapter III, "Performance of know-how—licensor's guarantee obligations". Issues relating to defects covered by a guarantee, the guarantee period, and a manufacturer's guarantee are dealt with in the chapter "Failure to perform".

contract (see preceding paragraph). However, if the works fails to operate in accordance with such parameters, the contractor may be permitted to avoid liability if he proves that the failure to operate was due to a failure of performance by another party involved in the construction.

4. *Price*⁵

13. Commercial practice has evolved distinct methods for determining the price payable for a licence of industrial property or the communication of know-how. In relation to such transactions, the price is usually determined as a lump-sum, or in the form of royalties. The unit-price method (see the chapter "Price") is unsuitable, as no units are supplied. When the contractor obtains the technology from a third party, the parties may in some cases wish to adopt the cost-reimbursable method (see the chapter "Price") and to provide that the costs incurred in obtaining the technology are to be reimbursed by the purchaser, provided that they do not exceed a specified limit.

14. If the lump-sum method is used, the total price is determined at the time of the conclusion of the contract, and this price is payable in one or more instalments. If the royalty method is used, the price payable (i.e. the royalty) is fixed by reference to some economic result of the use of the transferred technology. For example, the royalty is often fixed by reference to the production, sales, or profits arising from the use of the technology. Where the volume of production is used as the reference factor, the royalty may be determined, for instance, as a fixed amount per unit or quantity (e.g. per ton or per litre) produced. Where the volume of sales is used as the reference factor, the royalty may be determined as a percentage of the sales price. Under each method, what is meant by production, sales price, or profits will need careful definition.

15. Each method of price calculation may have certain advantages and disadvantages,⁶ depending on the economic circumstances attending the contract. The two methods may also be combined (e.g. an initial lump-sum payment followed by the payment of royalties).

5. *Infringement of rights of third party*⁷

16. The parties may wish to include in their contract an undertaking by the contractor that the industrial property or know-how transferred does not infringe the industrial property rights of a third party. They may also wish to include an undertaking by the purchaser that, where the contractor has to manufacture machinery

or equipment in accordance with designs supplied by the purchaser, such manufacture will not infringe the industrial property rights of a third party. They should also provide for the remedies which the purchaser or contractor may have in the event that a third party brings an action against one of them claiming infringement.

17. Each party should be obligated to notify the other of any claim for infringement immediately after he learns of such a claim. The contractor may be obligated to modify the technical processes supplied by him so that the third party's rights are no longer infringed, provided that such modification does not adversely affect the capability of the works to operate in accordance with the contract, and that the contractor bears the costs of the modification. The purchaser may be obligated to modify the design supplied by him so that the third party's rights are no longer infringed, and to bear the costs incurred by the contractor as a result of such modification of design. If legal proceedings are brought against a party, the other party should be obligated to assist him in defending those proceedings. If as a result of the legal proceedings the technology supplied by the contractor cannot be used in the works, or the works cannot be operated so as to achieve the performance parameters specified in the contract, the purchaser should have the remedies usually available upon a failure of performance by the contractor (see chapter XXX, "Failure to perform").

C. *Issues special to know-how provisions*

*Confidentiality*⁸

18. The contractor will usually require the know-how disclosed by him to be kept confidential (see para. 5, above). He may require such confidentiality at two stages. Firstly, he may disclose some know-how to the purchaser during negotiations, to enable the purchaser to decide whether he wishes to enter into a contract, and to make proposals as to contract terms. He will wish the purchaser to keep this know-how confidential. Secondly, if a contract is concluded, the contractor will require the additional know-how disclosed thereafter to be kept confidential. In such cases the parties should agree upon contractual provisions obligating the purchaser to maintain confidentiality.

19. The extent to which obligations as to confidentiality can be imposed on the purchaser may be regulated by mandatory legal rules in the purchaser's country. Issues to be addressed by such contractual provisions on confidentiality may include clear identification of the know-how to be kept confidential, the duration of the confidentiality (e.g. a fixed period) and the extent of permissible disclosure (e.g. disclosure

⁵See WIPO Guide, part II, section N, "Compensation; consideration; price; remuneration; royalties; fees", and UNIDO Guidelines, chapter VII, "Remuneration".

⁶These are considered in detail in the WIPO Guide, part II, section N, referred to in the preceding footnote.

⁷See WIPO Guide, part II, section E, "Special aspects concerning patents", and section S, 2, d, "Warranty against third parties for infringement".

⁸See WIPO Guide, section G, 2, "Legal means for preventing communication, disclosure or use of valuable information and expertise". In addition to confidentiality in respect of know-how, the contractor may require confidentiality in respect of documents describing the scope and quality of the works. This is dealt with in the chapter "Scope and quality of works".

being permissible in specified circumstances, or to specified persons). The parties may wish to provide that once the know-how to be kept confidential reaches the public domain, the obligation of confidentiality is to cease. The parties may also wish to provide, for example, that an engineer employed by the purchaser to supervise the construction should be allowed access to such of the know-how as is necessary for him to exercise effective supervision. They may further wish to provide that if the contract is terminated by the purchaser because of a failure of performance by the contractor, the purchaser may disclose to another contractor such of the know-how as is necessary for completion of construction by the other contractor. If the contract is terminated because the contractor is prevented by an exempting impediment from completing the construction (e.g. regulations in the contractor's country prevent him from exporting certain equipment), and the purchaser wishes to complete the construction by engaging another contractor, it may be provided that such of the know-how as is necessary for completion of construction may be disclosed to the other contractor.

D. Communication of technical information and skills

20. The purchaser will usually wish to be provided by the contractor with the technical information and skills necessary for the proper operation, maintenance and repair of the works. Such information and skills are normally conveyed through the supply of technical documentation and through the training of personnel.

1. Supply of documentation

21. The documentation to be supplied may consist of plans, drawings, formulae, manuals of operation and maintenance, and safety instructions. It may be advisable to list in the contract the documents to be supplied. The contractor may be obligated to supply documents which are comprehensive and clearly drafted, and the language of the documents may be specified. If procedures described in the documentation cannot be understood without demonstrations, the contract should obligate the contractor, at the request of the purchaser, to give such demonstrations.

22. The points of time at which the documentation is to be supplied may be specified. The supply of all documentation should be completed by the time fixed in the contract for completion of construction, and the parties may wish to provide that construction is not to be considered as completed unless all documentation relating to the operation of the works has been supplied. It may be advisable to provide that some documentation (e.g. operating manuals) is to be supplied in the course of construction, as such documentation may enable the purchaser's personnel or engineer to obtain an understanding of the working of machinery or equipment while it is being erected. It may also be advisable to provide that the contractor is liable to pay damages for loss caused to the purchaser through any errors or omissions in the documentation.

2. Training of personnel

23. In order to enable him to decide on his training requirements, the purchaser may wish in the invitation to tender or during the contract negotiations to request the contractor to supply him with a statement of the personnel requirements for the operation, maintenance and repair of the works, including the basic technical and other qualifications which the personnel must possess. This statement of requirements should be sufficiently detailed to enable the purchaser to determine the extent of training that he may require the contractor to provide. The parties should thereafter in the contract fix, to the extent possible, the training obligations of the contractor. A time schedule for training should be agreed, which is harmonized with the time schedule for construction. The parties should determine the times at which training is to be given, and provide that the training is to be completed by the time agreed for the completion of construction.

24. The contract should fix the categories of employees in respect of which training is to be given (e.g. chief mechanical engineer, electrical engineer) and the numbers to be trained. The contract should also fix the qualifications which trainees for a particular post must possess (e.g. educational background, linguistic abilities, technical skills, work experience). If these qualifications are not agreed in the contract, the contractor may have grounds for attributing the failure of the training to lack of relevant qualifications. The parties may also wish to provide that the selection of trainees is to be done jointly by the parties.

25. Training will often be required both on site and at places abroad. The places at which training is to be given abroad should be specified. While these would normally be at the contractor's works, in some cases the appropriate training might only be available at works or factories of third parties (e.g. technology or equipment suppliers). In such cases, the contractor should undertake to obtain placement of the trainees at such places. It may be advisable to provide that the operational conditions at the places of training are to be similar to those which the trainees will later encounter in the works.

26. The training obligations of the contractor in relation to each category of trainee should be clearly defined. In this connection, the contract should obligate the contractor to supply to the purchaser a training programme which he considers will enable the trainees to obtain the information and skills necessary for the proper discharge of their duties in the operation, maintenance and repair of the works. The programme should describe the nature of the training to be given. The contract may provide that this programme is to be approved by an engineer engaged by the purchaser. The contract should also obligate the contractor to engage trainers with qualifications and experience appropriate for the training. The purchaser should be notified before the commencement of training of such qualifications and experience. Where the parties enter into a product-in-hand contract (see chapter II, "Choice of

contract type"), the contractor is obligated to prove during a test period that the works can be successfully operated by the purchaser's staff. This obligation would influence the nature of the training programme needed.

27. The training of the personnel of the purchaser which is necessary may be minimal, e.g. making them acquainted on site with the procedures for operating and maintaining the plant. The parties may wish to agree that no price is to be paid for such training, as it is ancillary to the obligations of the contractor to supply and construct the works. Where more extensive training is required, it may be convenient to specify separately the price for the training. The price may be payable in stages (e.g. a percentage as an advance payment, a further percentage during the performance of the training programme, and the balance after proof of completion of the programme). The training programme may involve other costs (e.g. the living expenses of the trainees in the contractor's country, or the living expenses of the contractor's trainers in the purchaser's country), and the allocation of these should be settled. The contract may provide that the portion of the price for the training which covers costs incurred in the purchaser's country should be paid in the currency of that country.

28. For practical reasons, it may not be possible to settle some issues which arise in regard to training at the time of the conclusion of the contract (e.g. the date for commencement of training, or the duration of training). The parties should agree that such issues should be settled by the parties within a specified period of time after the conclusion of the contract.

[A/CN.9/WG.V/WP.15/Add.4]

Transfer of ownership of property

Summary

The issue of whether the contractor or the purchaser owns certain types of property involved in a works contract may be important in connection with certain questions (e.g. insurance and taxation). The transfer of ownership of property from one party to the other is usually governed by the law where the property is situated, and many legal rules governing this issue have a mandatory character. The parties have, therefore, only a limited scope to deal with this issue in the contract. The parties may be satisfied with the rules of the applicable law governing this issue, and accordingly may not wish to address it in the contract (paragraphs 1 and 2).

In drafting contract provisions in regard to the transfer of ownership of equipment and materials supplied by the contractor for incorporation in the plant, the parties should note that after incorporation in the plant such equipment and materials may cease to

be objects of independent ownership. The parties may wish to select a point of time for the passing of ownership such that the equipment and materials do not remain in the ownership of the contractor after the purchaser has paid a substantial portion of the price for them (paragraphs 3 and 4).

In regard to the transfer of ownership of equipment and materials supplied by the purchaser for incorporation in the plant, the purchaser should retain the ownership in such equipment and materials in cases where the plant during construction is owned by the purchaser. The parties should seek to avoid multiple transfers and re-transfers of ownership (paragraph 5).

In regard to the transfer of ownership of the plant during construction and the works after completion, in general the law of the country where the works is to be constructed will apply and will often provide that the plant and the works will be owned by the owner of the site, normally the purchaser (paragraph 6). If the law of the site permits the ownership of the plant and the works to be independent of that of the land, various considerations may be relevant to determining an appropriate allocation of ownership. For example, if a substantial portion of the price is to be paid by the purchaser in the form of progress payments during construction, the contract may provide that the purchaser is to own the plant (paragraph 7). The contractor might seek to obtain an allocation of the ownership to him in order to safeguard himself against the bankruptcy of the purchaser, or the seizure of the purchaser's property by his creditors, during construction. Where such an allocation is made, the contract may provide that ownership is to pass to the purchaser upon take-over (paragraph 8). The contractor might seek to obtain even greater protection through retention of ownership of the plant and the works till the entire price is paid. This may be justifiable to secure a credit given by the contractor to the purchaser in respect of the price (paragraph 9).

* * *

A. *General remarks*

1. The issue of whether the contractor or the purchaser owns certain types of property involved in a works contract may be important in connection with questions of insurance, taxation and liability to third persons arising from the property or its use (e.g. for loss or damage caused by such property). Whether the property is owned by one party or the other is also important because property is subject to seizure by creditors of its owner and is subject to bankruptcy proceedings against him.¹

¹It should be noted that the incidence of the ownership of the property should not be relevant to the question of which party is to bear the risk of loss of or damage to it (see the chapter "Allocation of the risk of loss or damage"). Furthermore, the passing of ownership of property to the purchaser should not imply approval by the purchaser of the quality of such property.

2. Some works contracts contain provisions dealing with the time when ownership of equipment and materials to be incorporated in the works, of the plant during construction and of the works after its completion, passes from the contractor to the purchaser. However, the transfer of ownership of such property is usually governed by mandatory rules of the legal system where the property is situated, which often give the parties only limited scope to determine in the contract the time when ownership passes from one party to the other. While under most legal systems ownership of property may not pass till the property is identified to the contract, some legal systems require in addition that the property be handed over to the party who is to acquire the ownership. Furthermore, many legal systems require that certain formalities be satisfied for the transfer of ownership of immovable property, in particular to give effect to the transfer as against third parties. In some cases, the parties may be satisfied with the rules of the applicable legal system determining when the transfer of ownership occurs and will not wish to include in their contract provisions regulating the transfer of ownership of property.

B. *Transfer of ownership of equipment and materials supplied by contractor for incorporation in plant*

3. In some cases, the parties might consider it desirable for the contract to specify the time when ownership of equipment and materials supplied by the contractor for incorporation in the plant passes to the purchaser. In drafting such provisions, the parties should take account of the fact that after incorporation of the equipment and materials in the plant, such equipment and materials may become merged in the plant and under many legal systems may cease to be objects of independent ownership.

4. In cases where equipment or materials are to be incorporated in the plant which is owned by the purchaser, the parties may wish to select a point of time for the passing of ownership such that the equipment and materials do not remain in the ownership of the contractor after the purchaser has paid a substantial portion of the price for them. The purchaser may otherwise suffer serious loss if the property of the contractor is seized by his creditors, or if the contractor is declared bankrupt. The contract may provide that, after such payment has been made by the purchaser, ownership is to pass from the contractor to the purchaser, for example, when the equipment and materials are handed over to the first carrier for transport to the purchaser, or when the equipment and materials are delivered to the site. If a substantial portion of the price for equipment has been paid during the manufacture of the equipment, the contract should provide that the transfer of ownership of such equipment occurs at the time of such payment, provided the equipment can be identified to the contract.

C. *Transfer of ownership of equipment and materials supplied by purchaser*

5. In cases where the plant during construction is owned by the purchaser, it is desirable for the purchaser to retain the ownership of equipment and materials supplied by him for incorporation in the plant by the contractor. In the exceptional cases where the plant during construction is owned by the contractor, the purchaser may wish to retain the ownership of such equipment and materials until they are incorporated in the plant, unless they have been previously paid for by the contractor. The parties, however, should seek to avoid multiple transfers and re-transfers of property to the greatest extent possible.

D. *Transfer of ownership of plant during construction and works after completion*

6. Under some legal systems, all things affixed to land are considered to be within the ownership of the landowner. If this principle applies under the law of the country where the works is to be constructed, the plant during construction and the works after its completion will be owned by the owner of the site, who is normally the purchaser.

7. If the law of the site permits ownership of the plant and the works to be independent of that of the land, the parties may consider whether they are content to rely on the law of the site of the plant and the works for the allocation of ownership to the purchaser or the contractor, or whether they wish to provide for such allocation in the contract. If they choose to provide for such allocation in the contract, various considerations may be relevant to determining an appropriate allocation of ownership. For example, if a substantial portion of the price is to be paid by the purchaser in the form of progress payments during construction, the contract may provide that the plant should be owned by him from the commencement of construction. Moreover, in some cases ownership by one contractor may not be practicable or permitted under the law of the site, for example where several contractors participate in the construction and it is not practicable or permitted for each contractor to own the portion of the plant constructed by him. In such cases the plant should be owned by the purchaser.

8. If allocation of the ownership of the plant and the works to the contractor is permissible under the law of the site, the contractor might seek to secure such an allocation in order to safeguard himself against the bankruptcy of the purchaser, or the seizure of the purchaser's property by his creditors, during construction. He may in particular wish to secure such an allocation when the payment conditions provide that the major portion of the price is to be paid on a date after the completion of the works. Where the contract provides for such an allocation of ownership to the contractor, the contract may also provide that ownership is to pass to the purchaser upon take-over of the works by him.

9. The contractor might seek to obtain even greater protection through contract provisions which entitle him to retain the ownership of the plant and the works until the entire price is paid. Such protection of the contractor may be justifiable if it is intended to secure credit given by the contractor to the purchaser in respect of the price, a substantial portion of which is to be paid on a date after the expiration of the guarantee period. The law of the site, however, may require that an arrangement for the retention of ownership must comply with certain formalities.

[A/CN.9/WG.V/WP.15/Add.5]

Applicable law

Summary

The rules of one or more legal systems may be applicable to a works contract, and govern, among other things, the formation and validity of the contract, and the interpretation and application of contractual provisions relating to the rights and obligations of the parties (paragraph 1). The determination of the law applicable to the contract is governed by the rules of private international law. These rules, however, give the parties considerable freedom to choose the law applicable to the contract (paragraphs 2, 5 and 7).

In the absence of a choice by the parties, uncertainty as to the law applicable to the contract may arise from two factors. Firstly, it may be unclear which rules of private international law will determine the law applicable to the contract. Secondly, even if this is clear, the rules of private international law may sometimes be too imprecise to enable the law applicable to the contract to be ascertained with reasonable certainty (paragraph 6).

It is desirable for the parties to specify that they are choosing only the substantive rules of a legal system to constitute the law applicable to the contract, and are excluding the application to the contract of the rules of private international law of the legal system (paragraph 8). The choice by the parties of the law applicable to the contract relates only to the legal rules governing their mutual contractual rights and obligations, and will usually not directly affect the rights and duties of persons who are not parties to the contract (paragraph 9).

The law of the purchaser's country is often chosen as the law applicable to the contract; however, the parties might wish to consider choosing the law of the contractor's country, or the law of a third country (paragraphs 10 and 11).

It is advisable to choose a single legal system to be the law applicable to the contract (paragraph 12). In addition to providing that the chosen law governs the contract, it may be desirable to identify the aspects of

the contractual relationship which are to be governed by the chosen law (paragraph 13).

In addition to the law applicable to the contract by virtue of the rules of private international law, mandatory rules of a public nature which are in force, in particular in the countries of the purchaser and contractor, may govern certain aspects of the construction (paragraphs 3 and 14). Such mandatory rules may concern technical aspects of the works or its construction (paragraphs 15 to 18), export, import and foreign exchange restrictions (paragraphs 19 and 20) and customs duties and taxes (paragraph 21).

* * *

A. General remarks

1. The legal rules of one or more legal systems will be applicable to a works contract. Such legal rules will govern, among other things, the formation and validity of the contract and the interpretation and application of contractual provisions relating to the rights and obligations of the parties. Moreover, the parties may either intentionally or unintentionally leave some issues concerning their contractual relationship unsettled in the contract, and for the settlement of such issues reference will have to be made to the relevant legal rules of some legal system. The legal rules which govern the mutual contractual rights and obligations of the parties are referred to in this Guide as the "law applicable to the contract".

2. The parties may exercise a certain degree of control over the law applicable to the contract, first by agreeing upon a legal system containing legal rules which are to constitute the law applicable to the contract, and second by modifying or excluding certain of those legal rules, if they are not mandatory.

3. In addition to the law applicable to the contract, particular aspects of the performance of the contract may be affected by laws in force in the countries of the parties and the country where the works is being constructed (if different from the country of the purchaser) which seek to regulate certain matters in the public interest (see paras. 15 to 21, below). Such laws may concern, for example, safety standards to be observed in construction, protection of the environment, import, export and foreign exchange restrictions, and customs duties and taxes. Normally, the parties will not be able to control the application of such legal rules.

4. Finally, the parties might wish to note that the rules of the legal systems of the places where equipment or materials are situated from time to time, or where the plant or the works is situated, may govern the transfer of ownership of such property, regardless of the choice by the parties of the law applicable to the contract (see the chapter "Transfer of ownership of property"). The question of which legal system's procedural rules are to govern legal proceedings for the settlement of disputes

arising from the contract is discussed in the chapter "Settlement of disputes".

B. Choice of law applicable to contract

5. Since an international works contract has points of contact with more than one country, there will be more than one legal system the rules of which could potentially be regarded as the appropriate rules to constitute the law applicable to the contract. The determination of the law applicable to the contract is governed by rules of private international law. The rules of private international law in most legal systems give the parties considerable freedom to choose for themselves the law applicable to the contract (see para. 7, below).

6. It is desirable for the parties to stipulate in the contract itself the legal system containing the legal rules which are to constitute the law applicable to the contract. If the parties do not do so, the law applicable to the contract may be uncertain. Such uncertainty arises from two factors. First, the rules of private international law by which the law applicable to the contract will be determined vary from country to country. If disputes under the contract are to be submitted to arbitration, it may be uncertain which rules of private international law the arbitrators will apply to determine the law applicable to the contract. If the contract does not specify a country where judicial proceedings to settle disputes under the contract must be instituted (see the chapter "Settlement of disputes"), it may be possible to institute proceedings in the courts of more than one country. Since each court will apply the rules of private international law of its own country, there may be several possible systems of private international law which could govern the determination of the law applicable to the contract. Even if the contract does stipulate the country where judicial proceedings must be instituted, such a stipulation may, under certain circumstances, be held invalid in some legal systems (see the chapter "Settlement of disputes"). The second factor producing uncertainty as to the law applicable to the contract is that, even when it is known which rules of private international law are to determine the law applicable to the contract, these rules are sometimes too imprecise to enable such law to be ascertained with reasonable certainty.

7. The extent to which the parties are allowed to choose the law applicable to the contract will be determined by the rules of private international law applied by a court or arbitral tribunal which is called upon to decide a dispute between the parties. Under many systems of private international law, the parties are permitted to choose the law applicable to the contract without any restrictions. Under other systems, however, the autonomy of the parties is limited (e.g. they are only permitted to choose a legal system which has some connection with the contract, such as the legal system of the country of one of the parties or of the place of performance). Accordingly, the parties should

take care to make a choice which will be upheld by such rules.¹

8. It is desirable for the parties specifically to provide in a choice-of-law clause that they are choosing only the substantive rules of the chosen legal system to govern their contractual relationship, and that they are excluding the application of the rules of private international law of that system. This will avoid the application, by virtue of the rules of private international law of the chosen system relating to remission (*renvoi*) or transmission, of the substantive legal rules of a legal system other than that chosen by the parties.

9. The choice by the parties of the law applicable to the contract relates only to the legal rules governing their mutual contractual rights and obligations; such a choice will usually not directly affect the rights and duties of persons who are not parties to the works contract (e.g. sub-contractors, personnel employed by the contractor or the purchaser, or the creditors of a party).

10. In many cases the parties may wish to choose as the law applicable to the contract the law of the country where the works is to be constructed, or the law of the purchaser's country, if this is different from the country where the works is to be constructed. This approach is often used in cases where tendering is required by the purchaser, since otherwise different tenders specifying different legal systems to apply to contracts concluded as a result of such tenders would not be comparable. In some works contracts, the parties may wish to choose the law of the contractor's country. In other contracts, the parties may prefer to choose the law of a third country which is known to both parties and which deals in an appropriate manner with the legal issues arising from the contract. If the contract stipulates that the courts of a particular country are to have exclusive jurisdiction over judicial proceedings to resolve disputes arising from the contract, the parties may wish to choose the law of that country. This could expedite judicial proceedings and make them less expensive, since a court would have little difficulty in ascertaining and applying the law of its own country. If a country has several legal systems, as in a federal State, it would

¹The parties may wish to note that the United Nations Convention on Contracts for the International Sale of Goods (Vienna, 1980) may apply to some works contracts if the parties have their places of business in different States and these States are parties to the Convention, or when the rules of private international law lead to the application of the law of a Contracting State, in particular when the parties choose the law of a Contracting State. Article 3 of the Convention provides that contracts for the supply of goods to be manufactured or produced are to be considered sales contracts, subject to two exceptions. If the law of a State party to the Convention is to be chosen as the law applicable to the contract, the parties may wish to indicate whether or not they intend the Convention to be applicable. The Convention is flexible enough to allow the parties to modify its rules or exclude its application entirely as the needs of the parties may require (see United Nations Convention on Contracts for the International Sale of Goods (Vienna, 1980), articles 1, 3 and 6 (A/CONF.97/18)).

be advisable for the parties in making their choice to indicate the particular legal system the legal rules of which are to constitute the law applicable to the contract.

11. The parties may also wish to take the following factors into consideration in deciding upon the law applicable to the contract:

(a) The parties' knowledge of, or possibility of gaining knowledge of, the law;

(b) The capability of the law to settle in an appropriate manner the legal issues arising from the contract;

(c) The extent to which the law may contain mandatory rules which would prevent the parties from settling in the contract and in accordance with their needs issues arising from the contract.

12. It is advisable for the parties to choose a single legal system the rules of which are to constitute the law applicable to the contract, and for these rules to govern all rights and obligations arising in connection with their contractual relationship. Under the rules of private international law of some legal systems, the parties are permitted to provide that the legal rules of different legal systems are to apply to different rights and obligations under the contract. However, if the parties adopt this approach, difficulties may arise, since the legal rules of the different legal systems may not be in harmony, and some gaps or inconsistencies in the applicable rules may result.

13. The choice-of-law clause should provide that the contract is to be governed by the chosen law. In addition, it may be desirable for the clause to identify some of the aspects of the contractual relationship between the parties which are to be governed by the chosen law. If the parties do not adopt this course, the courts in some legal systems might interpret the clause as not applying the chosen law to certain rights or duties which the parties intended to be governed by the chosen law (for example, as applying to rights and obligations arising from the contract, but not to rights and obligations arising from a breach of contract). Accordingly, it may be desirable for the contract to provide that the chosen law is to govern, for example, the formation of the contract, the validity of the contract and the legal consequences if it is invalid, the interpretation of the contract, the rights and obligations of the parties arising from the contract, the time of passing of the risk of loss or damage, the consequences of a failure to perform and the variation, suspension and extinction of contractual rights and obligations. Under the rules of private international law of some countries, a chosen law may govern the prescription of claims, while under the rules of private international law of other countries rules relating to prescription (limitation of actions) are of a procedural character and cannot be governed by the chosen law; rather, the

procedural rules of the place where the legal proceedings are brought will apply.²

C. *Mandatory legal rules of public nature*

14. In addition to legal rules applicable by virtue of the rules of private international law, certain rules of an administrative or other public nature in force in the countries of the parties or other countries (e.g. in the country where the works is being constructed) will govern certain aspects of the construction. These rules are often mandatory and therefore must be observed even if they are not reflected in the contract, irrespective of the identity of the legal system whose rules constitute the law applicable to the contract.

1. *Rules concerning technical aspects of works or its construction*

15. In the country where the works is to be constructed, there usually exist certain mandatory rules concerning technical aspects of the works or its construction. Such rules often relate, for example, to safety requirements during the construction and operation of the works, environmental protection, and health and labour conditions. In addition to these rules imposed by the country where the works is to be constructed, safety standards for equipment may be imposed by the country where such equipment is produced.

16. It is desirable for the legal rules described in the previous paragraph to be incorporated in some manner into the contract, e.g. in provisions regarding the scope and quality of the works. Since it may be difficult for the contract expressly to reflect all the relevant legal rules concerning technical aspects of the works, it may be desirable for the contract to contain a provision obligating the contractor to construct the works in conformity with all applicable rules concerning safety, environmental protection, and health and labour conditions. The purchaser may, however, be obligated to assist the contractor with information about the existence and scope of such rules.

17. It is also desirable to settle in the contract which party is to bear the risk of a change in the mandatory rules concerning technical aspects of the works or its construction, or of the creation of new rules, after the conclusion of the contract. Usually the construction can

²*Illustrative provision*

"The law of ... (country), excluding its rules of private international law, shall govern this contract. Without limiting the generality of the foregoing, this law shall govern the following issues: the formation of the contract, the validity of the contract and the legal consequences if it is invalid, the interpretation of the contract, the rights and obligations of the parties arising from the contract, the time of passing of the risk of loss or damage, the failure to perform and its consequences, [the prescription of claims,] and the variation, suspension or extinction of contractual rights and duties."

continue despite the changed or new rules, and the parties may wish to obligate the contractor to construct the works in accordance with the changed or new rules. If this approach is adopted, the parties might also wish to consider whether a change in the costs of construction resulting from the changed or new rules should result in an adjustment of the price (see the chapter "Price"). In the exceptional circumstances in which it becomes impossible to continue with the construction because of the changed or new rules, termination of the contract might be justified (see the chapter "Termination").

18. It is desirable for the contract to obligate the purchaser to obtain official approvals or authorizations, required under the law of the country where the works is to be constructed, for the use of the site for construction and for the operation of the works. The contractor may be obligated to assist the purchaser in this respect, in particular by providing all relevant technical data concerning the construction to be effected by the contract and concerning the operation of the works.

2. *Rules concerning export, import and foreign exchange restrictions*

19. In the country where the works is to be constructed, there may exist rules which restrict the import of equipment or materials to be used for construction, or the supply of services or the transfer of technology by foreign suppliers. In some cases there may also exist in the contractor's country rules which restrict the export of equipment or materials, the supply of services or the transfer of technology to foreign parties. In addition, foreign exchange or currency rules in the purchaser's country may affect the payment of the contract price by the purchaser. It is desirable for all such rules to be taken into consideration in drafting the contract in order to avoid having the contract or some of its provisions held to be invalid. If such rules are issued only after the conclusion of the contract, their application may result in a legal impossibility to perform the contract. The law applicable to the contract or the contract itself may determine the effects of such situations. In some cases they might justify termination of the contract (see the chapter "Termination"). Whether damages may be claimed in such circumstances and, if so, under what conditions, is discussed in the chapter "Exemptions".

20. It is desirable for the contract to obligate the contractor to obtain export and other licences needed for his performance which are required under the law of his country, while the purchaser might be obligated to obtain import and other licences needed for the performance by the contractor which are required in the country where the works is to be constructed, as well as licences or approvals required for payment of the price.

3. *Rules concerning customs duties and taxes*

21. While legal rules concerning customs duties or taxes may not affect the technical aspects of the works or its construction, or prevent the completion of the works in accordance with the contract, they could have important effects in respect of financial aspects of the construction. Contractual provisions concerning taxes and customs duties are discussed in the chapter "Customs duties and taxes".

[A/CN.9/WG.V/WP.15/Add.6]

Construction on site

Summary

Construction on site covers erection of equipment, building and civil engineering. Under a works contract, the supplier of equipment may himself effect such construction, or he may supervise construction by the purchaser or another person engaged by the purchaser (paragraph 1).

The contract should allocate responsibilities with respect to the work to be performed in preparation for construction. This may include such matters as clearing and levelling the site (the site will normally be provided by the purchaser), providing access roads or railways, making available water and energy, providing accommodation, utilities and other facilities needed for the purposes of the construction by the contractor's personnel, assisting in obtaining visas and work permits for the contractor's personnel, and providing a workshop (paragraphs 2 to 6).

The contract should normally stipulate that the contractor is responsible for providing all construction machinery and tools needed for effecting the construction undertaken by him. In cases where some of such items are to be supplied by the purchaser, the contract should specify the rights and obligations of the parties in respect of such items. The contract should also allocate responsibilities in respect of obtaining licences and authorizations required for the import by the contractor of construction machinery and tools which he intends to re-export after the completion of the construction, and in respect of transport needed for effecting the construction (paragraphs 7 to 9).

The contract should set forth the time when the construction is to be completed (paragraphs 10 to 14). It should contain a time schedule to establish the sequential order in which the construction is to take place. The time schedule may establish obligatory milestone dates for achieving progress in the course of construction, and the contractor should be liable for delay if he fails to meet such milestone dates. In cases where it is not possible to agree upon all the details of the time schedule at the time of the conclusion of the

contract, the purchaser may be authorized to determine the time schedule by notifying it to the contractor within a specified period of time before the commencement of construction (paragraphs 15 to 19).

The contract should stipulate the situations in which the time for completion, or an obligatory time for construction of a portion of the works under a time schedule, is to be extended, and provide a mechanism for effecting such an extension (paragraphs 20 to 22).

If the separate contracts or the semi-turnkey contracts approach is used, in addition to supplying equipment to be incorporated in the works, a separate or semi-turnkey contractor may assume the obligation to supervise construction to be effected either by the purchaser's personnel or by a local contractor engaged by the purchaser. When the contractor is to supervise construction to be effected by the purchaser or by persons engaged by him, the contract should specify the responsibilities of the parties in respect of the construction to be supervised. Usually, the contractor should be obligated to give instructions concerning the technical aspects of the construction and to inspect such construction, and the purchaser or persons engaged by him should be obligated to carry out with proper skill and care the instructions given by the contractor. The contractor should not be liable for defects in the construction caused by a failure of the purchaser or persons engaged by him to comply with the contractor's instructions (paragraphs 23 to 26).

The contract should define the rights of access to the site of each party and of third persons, and should establish which party is responsible for excluding persons who have no right of access (paragraphs 27 to 31).

The parties may wish to agree that certain obligations concerning the working conditions of the contractor's personnel on site are to be assumed by the purchaser. The contract should obligate the contractor to comply with mandatory rules of law relating to working conditions, and the purchaser might be obligated to assist the contractor in obtaining information concerning such rules (paragraphs 32 and 33).

The contract should obligate each party to co-operate with the other to the extent needed for the performance of each party's obligations, and to avoid conduct which interferes with such performance. When more than one contractor is to participate in the construction, each contractor should also be obligated to avoid conduct which interferes with the performance of the obligations of other contractors. As a mechanism to promote co-operation between the parties, the contract might provide for each party to appoint a liaison agent to serve as a means of communication between the parties with respect to the day-to-day construction of the works (paragraphs 34 and 35).

The contract should set forth any obligations of the contractor with respect to his procurement on behalf of the purchaser of materials or other items needed for

construction to be effected by the purchaser, as well as any obligations of the contractor to assist the purchaser in contracting with third parties (paragraphs 36 to 39).

The contract should set forth the obligations of the contractor to clear the site periodically during construction and after take-over or acceptance of the works (paragraph 40).

* * *

A. General remarks

1. Construction on site, as discussed in this chapter, covers erection of equipment, building and civil engineering. Under a works contract, the supplier of equipment may himself effect such construction, or he may supervise construction effected by the purchaser or another person engaged by the purchaser.

B. Preparatory work

2. Under all works contracts, the purchaser is normally obligated to provide a site. The site should be identified in the contract (e.g. by reference to maps or plans). The contractor will normally have inspected the site prior to the conclusion of the contract, and may have assumed some obligations as to the suitability of the site for the proposed construction (see the chapter "Invitation to tender and negotiation process").

3. Some preparatory work on the site is usually needed to enable construction to commence and to progress smoothly. Such preparatory work usually consists of clearing and levelling the site, providing access roads or railways, and making water and energy available to the site. The contract should specify the obligations of each party in regard to such preparatory work, fix a time schedule for such work, and determine which party is to bear the costs of such preparatory work. It may be advisable for the purchaser to undertake some items of preparatory work even when the turnkey contract approach is adopted (see the chapter "Choice of contract type"). It is desirable for the contract to obligate the purchaser to obtain official approvals or authorizations, required under the law of the country where the works is to be constructed, for the use of the site for construction (see the chapter "Applicable law").

4. The contract should determine which party is to provide accommodation, utilities and other facilities needed for the purposes of the construction by the contractor's personnel. It may be convenient for the purchaser to undertake some or all of the following obligations: to provide offices and living quarters suitable for the contractor's personnel; to equip such accommodation with furniture and with telephones and other utilities; to provide food or catering facilities for the contractor's personnel; to provide sanitary facilities on the site; and to provide daily transportation for the contractor's personnel between their living quarters and the site.

5. It may be advisable before commencing construction to hold a joint inspection by the parties of the facilities to be provided by the purchaser, and to describe the condition of such facilities in a protocol signed by both parties. The parties may also wish to provide that the purchaser is to assist in obtaining visas, work permits, and similar documents which are necessary for the contractor's personnel to enter the country of the site or to commence work there.

6. It is usually necessary to provide a workshop for the purposes of the construction, and the contract should obligate the contractor to provide such a workshop. The purchaser may wish to retain this workshop for the purposes of repairing and maintaining the works after construction has been completed. In such cases the contract may treat the workshop as part of the works to be constructed by the contractor (e.g. include the cost of the workshop in the contract price). An alternative approach may be to give the purchaser the right to acquire the workshop, if he so desires, after the completion of construction, at a reasonable price.

C. Construction to be effected by contractor

1. Machinery, tools and facilities for effecting construction

7. The contractor will need construction machinery (e.g. excavators, cranes, earth-movers) and tools (e.g. drills, saws) for effecting the construction. The contract should normally obligate the contractor to provide all construction machinery and tools needed for effecting the construction undertaken by him. In certain cases, however, the purchaser may be willing to supply the contractor with some of such construction machinery and tools. In such cases, the contract may enumerate the items to be supplied by the purchaser, and provide that the contractor is responsible for obtaining all other items needed by him. Furthermore, the contract should specify the rights and obligations of the parties in respect of such items (e.g. whether the items are to be sold or hired to the contractor, and the amount payable by the contractor in respect of the sale or hire or whether such amount has been included in the price). The contract should also address certain issues which will arise under such arrangements, for example, the dates on which the items are to be supplied, the quantity and quality of the items to be supplied, which party is responsible for maintenance and repairs, the purposes for which the items may be used, and which party bears the risk of loss of or damage to the items. The same issues will have to be addressed if the purchaser undertakes to construct a portion of the works and the contractor is willing to supply some of the items the purchaser needs for effecting the construction.

8. Special licences and authorizations (e.g. customs clearances) may be required in respect of construction machinery and tools imported by the contractor into the country of the site which the contractor wishes to re-export after the completion of the construction. The

purchaser should be obligated to assist the contractor in obtaining such licences and authorizations or to procure them on behalf of the contractor.

9. The parties may wish to determine how the transport needed for effecting the construction is to be provided. The contract may, for example, stipulate that one of the parties is to provide the vehicles needed, and may allocate responsibility in respect of the maintenance, repair and replacement of the vehicles.

2. Time for completion of construction

10. The contract should clearly set forth the time when the construction is to be completed by the contractor. The time for completion may be determined either by a fixed date or by reference to a period of time. If a fixed date is used, the contract should specify the situations in which this date may be postponed and a criterion for determining the length of postponement. If the contract requires construction to be completed within a specified period of time, the contract should specify when the period is to commence, under what circumstances it will cease to run or will be extended, and a criterion for determining the length of the extension.

11. The parties should usually agree upon the time for completion of construction in the contract, and should not leave such time to be determined after the contract has been concluded. If the time for completion is not agreed upon in the contract, and the parties later fail to agree upon this issue, it may be difficult for adjudicators in dispute settlement proceedings to fix a time for completion (see the chapter "Settlement of disputes").

12. In determining when a period of time for completion of construction is to commence, the following dates may be considered:

- (a) The date on which the contract enters into force;
- (b) The date on which the contractor receives notice from the purchaser that all licences for import of equipment and materials, and all official approvals for construction of the works required in the purchaser's country, have been granted to the purchaser, or that construction should begin;
- (c) The date of receipt by the contractor of an advance payment of a portion of the price to be made under the contract;
- (d) The date on which the purchaser delivers to the contractor documents defining the scope and quality of the works (e.g. designs, drawings) which are needed for the commencement of construction.

13. The contract might provide for the occurrence of more than one of the events mentioned in the preceding paragraph, in which case the time period should commence to run after all the events have occurred.

14. If only one contractor participates in the construction of the works, it would generally be in the interest of the purchaser for the construction to be completed as early as possible, and for the date fixed

for completion or the end of the period of time for completion to be considered as the final date for completion, with earlier completion being permissible or even encouraged (see the chapter "Price"). In some cases, however, the purchaser may not wish construction to be completed earlier for various practical reasons, including his financial arrangements. The contract should address the issue of early completion by the contractor and reflect the agreement of the parties on this issue.

3. *Time schedule for construction*

15. The contract should contain a time schedule to establish the sequential order in which construction on site is to take place. A time schedule is desirable in order to facilitate an evaluation of the progress of the construction. It may also facilitate the fixing of an extension of time for completion in the case of a variation or an impediment to construction (see the chapter "Completion, take-over and acceptance of the works"). The parties should agree upon the time schedule in the contract, since there may be difficulty in agreeing upon a time schedule at a later stage.

16. The time schedule may establish obligatory milestone dates for achieving progress in the course of construction. The purchaser may be entitled to order the contractor to speed up construction if it is evident that such milestone dates will not be met. A contractor who fails to meet such milestone dates should be liable for delay (see chapter "Failure to perform"). The time schedule should also reflect any obligations which the purchaser assumes under the contract in respect of the construction. The contractor should be obligated to deliver to the purchaser periodically during construction a report on the progress of construction.

17. The time schedule should be prepared in such a form (e.g. graphically) as would permit the actual progress of the construction to be recorded and compared with the time schedule. One method for designing the time schedule which the parties may wish to consider is the "critical path method". In this method, the entire construction is divided into individual tasks and each task is assigned a period of time within which it is to be performed. These periods are incorporated in a schematic diagram depicting the sequence and interrelationship of construction activities. Critical activities, i.e. activities on which other activities depend, form a continuous chain, known as the critical path, through the schematic diagram. This method may facilitate the evaluation of the consequences of delay in certain construction activities upon other such activities.

18. Where the separate contracts approach is adopted and several contractors are to participate in the construction (see the chapter "Choice of contract type"), each contract should include a time schedule of the sequence of construction under that contract to enable the purchaser to co-ordinate construction. The sequence of construction under each contract should be

harmonized with an overall time schedule for the construction of the entire works. However, in some cases it may not be possible to agree upon all the details of a time schedule at the time of the conclusion of the contract. For example, it may be possible to stipulate the period of time within which the construction required by a separate contract is to be completed, but not the date of commencement of construction. In these cases, the purchaser may be authorized to determine the time schedule by notifying it to the contractor within a specified period of time before commencement of construction. The contract may provide that if the purchaser requires the construction to commence before or after specified dates, the contractor would be entitled to a certain adjustment in the price. The contract may also provide that if the purchaser does not require the commencement of construction within a period specified in the contract, the contractor may be entitled to terminate the contract.

19. If the time for completion is extended, the time schedule for construction should by agreement be adapted to the new time for completion. Failure to agree on an adaptation of the time schedule should be settled in the same way as a failure to agree upon the consequences of a variation of construction (see the chapter "Variation clauses").

4. *Extension of time for completion of construction*

20. The time for completion of the construction specified in the contract, or an obligatory time for construction of a portion of the works under a time schedule, should be extended if certain events occur. The parties may wish to provide for such an extension in the following situations:

(a) The construction has been suspended by the purchaser for his convenience, or by the contractor because of the purchaser's failure to perform an obligation (see the chapters "Suspension of construction" and "Failure to perform");

(b) Work additional to that envisaged at the time of the conclusion of the contract has to be performed by the contractor due to a variation of the construction ordered by the purchaser (see the chapter "Variation clauses") or due to safety, environmental or other administrative regulations binding on the contractor which are issued after the conclusion of the contract (see the chapters "Price" and "Applicable law");

(c) Additional work has to be performed by the contractor to make good loss or damage the risk of which is borne by the purchaser, or to make good loss or damage caused by the purchaser, or a person engaged by the purchaser for construction (see the chapter "Allocation of risk of loss or damage");

(d) The purchaser, or a person engaged by him for construction, prevents the contractor from constructing the works in accordance with the contract;

(e) The construction is prevented as a result of an exempting impediment (see the chapter "Exemptions").

21. The contractor should be obligated to notify the purchaser promptly of the occurrence of any events which would entitle him to an extension of time for completion. Furthermore, the contractor should be obligated to notify the purchaser of the length of the extension which he wishes to have as soon as he is in a position to specify such length. If, within a specified period of time after the delivery of the latter notice, the parties fail to agree on the length of the extension which the contractor is to be given, the time for completion of the construction may be considered to be extended by a period of time reasonably needed for the completion (i.e. taking into account the period of time during which the construction was suspended, the amount of further construction which has to be effected, or the period of time during which the contractor was prevented from effecting the construction). This period may eventually have to be determined in dispute settlement proceedings (see chapter XL, "Settlement of disputes"). The contractor should not be entitled to stop construction pending or during such proceedings.

22. An extension of time for performance granted to the contractor may require some consequential measures to be taken in respect of insurance (see the chapter "Insurance") or in respect of security interests (see the chapter "Security for performance"), e.g. extension of the period of validity of bank guarantees.

D. Construction to be effected under contractor's supervision

23. If the separate contracts or the semi-turnkey contract approach is used for contracting (see chapter II, "Choice of contract type"), in addition to supplying equipment to be incorporated in the works, a separate or semi-turnkey contractor may assume the obligation to supervise construction to be effected either by the purchaser's personnel or by a local contractor engaged by the purchaser. Such an arrangement would, for example, enable the purchaser to pay some of his construction costs in local currency, thereby reducing his outflow of foreign exchange, or strengthen the technological capacity of the purchaser's country.

24. When the contractor is to supervise construction to be effected by the purchaser or by persons engaged by him, the contract should carefully specify the responsibilities of the parties in respect of the construction to be supervised. Usually, the contractor should be obligated to give the instructions concerning the technical aspects of the construction and to inspect such construction; and the purchaser or persons engaged by him should be obligated to carry out with proper skill and care the instructions given by the contractor. The instructions to be given by the contractor should take into consideration local laws and regulations (see the chapter "Applicable law"). The contract should obligate the purchaser, within a specified period of time before the commencement of the supervision by the contractor, to notify the contractor of the persons to whom instructions are to be given. The contractor should not be liable for defects in the construction if

such defects were caused by a failure of the purchaser or persons engaged by him to comply with the contractor's instructions. Where defects are caused by a failure of persons engaged by the purchaser to comply with the contractor's instructions, the contract may enable the contractor to avoid liability in two cases: firstly, if the defects could not reasonably have been discovered by the contractor in the course of his inspection; and secondly, if the defects could reasonably have been so discovered, the contractor notifies the purchaser of the defects at the time that the defects were reasonably discoverable.

25. In cases where the purchaser or persons to be engaged by him are capable of effecting the construction without instructions having to be given by the contractor, the contractor's obligations may be limited to inspecting the construction effected by such persons. In these cases the contractor would be liable only for failing properly to inspect the construction.

26. The contract may specify the qualifications required of the persons to carry out the supervision on behalf of the contractor and should obligate the contractor to notify the purchaser of persons authorized to carry out the supervision. The contract may indicate the estimated duration of construction to be supervised and the approximate time when it is to be effected. The contract may obligate the contractor to commence his supervision within a specified period of time after delivery to him by the purchaser of a notice to commence. The contractor should not be liable for any delay in the completion of the construction arising from a failure to perform by persons engaged by the purchaser.

E. Access to site and plant

27. The contractor, his sub-contractors and suppliers will need access to the site for the purposes of the construction. The purchaser, his consulting engineer, or other agents will also need access for certain purposes (e.g. to effect any construction undertaken by the purchaser, or to check the construction effected by the contractor). Third persons may also need access (e.g. insurance companies with which insurance has been effected may wish to inspect the plant from time to time). The contract should define the rights of access of each party and of third persons. The rights of access of public officers of the country of the site may be mandatorily established by the law of the country of the site.

28. In addition to establishing rights of access, the contract may determine which party is responsible for excluding persons who have no right of access. Where one contractor is in control of the entire site and the plant during construction (e.g. under the turnkey contract, comprehensive contract, and product-in-hand contract approaches, and possibly under the semi-turnkey contract approach), this contractor may be obligated under the contract to exclude persons with no right of access. In other cases (e.g. under the separate contracts approach), the purchaser may undertake this

obligation. It may be desirable to provide that whichever party undertakes this obligation must also take security measures in respect of the construction (against, for example, theft, arson, or damage to property).

29. Access to the site should include access to the area where construction is carried out and also to workshops, laboratories, stores, utilities, and other facilities created for the purposes of the construction. The extent and duration of the access needed by a contractor would depend on the construction obligations undertaken by him. Thus, a turnkey or comprehensive contractor who has undertaken to construct the entire works would need access to the entire site for the whole period of the construction. A separate contractor undertaking a portion of the construction may only need access of a limited duration to a limited portion of the site. Where the construction is to be effected by one separate contractor is interrelated with the construction to be effected by another contractor, each contractor may need access to the site occupied and the construction effected by the other. In determining the access which one contractor is to have to the construction being effected by another, account should be taken of obligations as to confidentiality (e.g. with regard to drawings, specifications or technology) undertaken by the other contractor.

30. The purchaser and his consulting engineer should be entitled to access to the entire site and to the construction being effected at all times during the construction. The parties may, however, agree that other contractors, and suppliers of the purchaser, are to be excluded from the construction being effected by a contractor in order to ensure compliance with obligations as to confidentiality undertaken by the purchaser.

31. A right of access granted to a contractor should continue until take-over by the purchaser of the works or portion of the works constructed by the contractor. The contractor should also have a right of access for the purpose of participating in inspections and tests which take place after take-over. Moreover, the contractor should be entitled to access for the purposes of repairs which he is obligated to make.

F. Working conditions

32. In general, the contractor should be responsible for the working conditions of his own personnel on site, and accordingly the contract need not contain provisions dealing with such working conditions. However, the parties may wish to agree that certain obligations concerning such working conditions (e.g. obligations referred to in paras. 4 and 5, above) are to be assumed by the purchaser. The extent of such obligations will depend upon the type of contract in question. For example, in a turnkey contract where the contractor is responsible for all matters relating to the construction of the works, the obligations to be assumed by the purchaser may be minimal. However, in contracts in

which the control of the purchaser over the construction is more extensive, the obligations which the purchaser assumes with respect to working conditions may be more extensive.

33. The law of the country where the works is to be constructed may contain rules regulating certain matters relating to working conditions, such as working hours and holidays, and health and safety requirements. The contract should obligate the contractor to comply with all such rules. However, the purchaser might be obligated to assist the contractor in obtaining information concerning such rules.

G. Co-operation between parties

34. Co-operation between the parties in respect of construction activities on the site is essential for the smooth progress of the construction. The instances in which co-operation will be required are almost limitless and range from avoiding interference between personnel of one party with personnel of another party, to dealing with technical problems which arise during the course of construction. While it would be impossible for the contract to enumerate the instances in which co-operation will be required, it would nevertheless be desirable for the contract generally to obligate each party to co-operate with the other to the extent needed for the performance of each party's obligations, and to avoid conduct which interferes with such performance. When more than one contractor is to participate in the construction, each contractor should also be obligated to avoid conduct which interferes with the performance of the obligations of other contractors. The contract might also provide for the parties and the engineer to meet periodically, or at specified intervals, to discuss matters of common interest and to resolve outstanding issues concerning the construction of the works.

35. As one mechanism to promote co-operation between the parties, the contract might also provide for each party to appoint a liaison agent, who would be required to be present on site during working hours. The function and authority of the liaison agents should be essentially to serve as a means of communication between the parties involved in the day-to-day construction of the works. A liaison agent should be authorized to give and receive notices on behalf of the party appointing him.

H. Procurement by contractor on behalf of purchaser

36. In some situations, the parties may prefer some materials or other items needed for construction to be effected by the purchaser to be procured by the contractor on behalf of the purchaser. Such an arrangement could be of assistance to a purchaser in obtaining such items, since the contractor may be in a position to procure such items more efficiently or more inexpensively.

37. In connection with the procurement of supplies by the contractor on behalf of the purchaser, the contract might obligate the contractor to prepare the tender or purchase documents for the approval and signature of the purchaser and forward them to the suppliers; provide appropriate specifications for the supplies; obtain from the suppliers appropriate warranties with respect to the supplies (the warranties should be in favour of the purchaser); take delivery of the supplies; and inspect the supplies upon their delivery to the site.

38. The same reasons which make it desirable for the purchaser to participate in the selection of a sub-contractor (see the chapter "Sub-contracting") apply with equal, if not greater, force to the selection of third parties to provide supplies on behalf of the purchaser. Certain of the mechanisms discussed in the chapter for the selection of sub-contractors, such as tendering or pre-qualification mechanisms, may be adopted for the selection of suppliers on behalf of the purchaser, with appropriate modifications to account for the fact that the purchaser, and not the contractor, is to pay for such supplies.

I. Assistance by contractor in purchaser's contracting with third parties

39. Where the purchaser is to himself obtain supplies from third parties, the contract may require the contractor to assist the purchaser in obtaining such supplies. For example, the contract may obligate the contractor to advise the purchaser as to the specifications and quantities of supplies and the warranties which should be obtained from the suppliers. The contractor may also be obligated to ensure that the specifications for the supplies are suitable for the works, and to inspect the supplies upon their delivery to the site.

J. Clearance of site after completion

40. The contract should obligate the contractor periodically to clear the site of excess materials and waste. Furthermore, it should obligate him after take-over or acceptance of the works to remove in addition his construction machinery and tools, except those which he will need in order to repair defects during the guarantee period. If the purchaser does not wish to retain the workshop which has been provided (see para. 6, above), the contractor should also be obligated to remove it. For the contractor's obligations with respect to his construction machinery and tools when the contract is terminated, see the chapter "Termination".

[A/CN.9/WG.V/WP.15/Add.7]

Revised draft outline of the structure

1. The secretariat submitted to the fourth session of the Working Group a provisional draft outline of the

structure of the Guide (A/CN.9/WG.V/WP.9/Add.1). In the preparation of certain draft chapters of the Guide subsequent to that session, the secretariat has departed in some respects from the structure of the Guide as set forth in the provisional draft outline. In some cases this has resulted from discussions in the Working Group; in other cases this has resulted from further reflection by the secretariat on the structure of the Guide.

2. A revised draft outline reflecting these changes has therefore been prepared in order to present to the Working Group the draft structure of the Guide as it appears at the present stage of the work. The revised draft outline is set forth below.

Introduction

(Background to preparation of the Guide; scope and purpose of arrangement of subject-matters in the Guide, including context of new international economic order; arrangement of the Guide; terms used in the Guide; how to use the Guide)

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[A/CN.9/WG.V/WP.15/Add.8]

Choice of contracting approach*

Summary

A purchaser entering into contractual arrangements for the construction of industrial works should consider the different approaches available to him. He may enter into several separate contracts, each of a limited scope and dealing with different aspects of the construction, or he may enter into one or more of such contracts, and one or more works contracts, i.e. contracts of a broader scope which, as a minimum, impose the following obligations on the contractor: the supply of equipment, and either construction on site or supervision of such construction by others. Whichever approach is adopted, the purchaser will also participate to some degree in the construction (paragraphs 1 to 3).

Under the turnkey contract approach, a single contractor is engaged to construct the whole works and to supply everything needed for such construction, including the design, the technological process, and equipment and materials to be incorporated in the works. The contractor is liable if the works is not completed in time or is not in accordance with the contract, even if the failure is due to delay or defective performance by the contractor's sub-contractors or suppliers (paragraphs 5 to 11).

Under the comprehensive contract approach, a single contractor undertakes to construct the whole works in accordance with a design and incorporating a technological process supplied by the purchaser. He will be liable if the construction is not completed in time and in accordance with the design (paragraphs 12 and 13).

Under the product-in-hand contract approach, the contractor has the same responsibilities for the construction of the entire works as a turnkey contractor. However, he is, in addition, obligated to ensure that the works can be operated and the agreed production targets achieved by the purchaser's own staff. The contractor is thus obligated to train the purchaser's personnel and to operate and manage the works during an agreed test period (paragraphs 14 and 15).

Under the separate contracts approach, the purchaser enters into one or more works contracts and possibly one or more contracts of limited scope. Each contractor is responsible only for the equipment, materials and services supplied by him and the technology transferred by him. The purchaser must co-ordinate the scope and the execution of all of the contracts and must bear the risk of defects in the works or delays in its construction resulting from a failure of such co-ordination. The way in which the construction of the works is to be divided among the various contractors will depend upon the

*This draft chapter is a revised version of the draft chapter "Choice of contract type" (A/CN.9/WG.V/WP.9/Add.2). The substance of the section entitled "Contract types classified by pricing methods" in the latter draft chapter has been incorporated in the draft chapter "Price" (A/CN.9/WG.V/WP.15/Add.1).

nature and size of the works, as well as on financial considerations. However, a separation of the design of equipment from the supply and erection of the equipment may create problems for the purchaser.

The risks borne by the purchaser in connection with the co-ordination of separate contracts may be reduced by employing a third person, such as a construction manager or a consulting engineer, to effect such co-ordination (paragraphs 16 to 21).

Under the semi-turnkey contract approach, the semi-turnkey contractor supplies the design and essential equipment for the works and undertakes to effect a major portion of the construction. He must also define the scope and quality of the construction to be effected by other contractors. The semi-turnkey contractor also assumes certain limited responsibilities with respect to co-ordinating the construction process. The semi-turnkey contractor is responsible for handing over the completed works in accordance with the contract and can avoid this responsibility only in the event of a failure of another contractor to perform in accordance with the design and the time schedule (paragraphs 22 to 25).

* * *

A. General remarks

1. The purchaser entering into contractual arrangements for the construction of industrial works may adopt different approaches. He may enter into several separate contracts, each of a limited scope and dealing with different aspects of the construction, such as separate contracts for the design, for civil engineering, for the supply of equipment and materials, for erection of the plant and for the transfer of technology.¹ He may also enter into a combination of one or more of such contracts, and one or more works contracts, i.e. contracts of a broader scope which, at a minimum, impose the following obligations on the contractor: the supply of equipment, and either construction on the site or supervision of such construction by others. The term "construction" refers to building, civil engineering, or erection, or a combination of these processes (see the chapter "Construction on site"). Another approach may be for the purchaser solely to enter into one or more works contracts.

¹The Guide does not deal with the contents of these different types of contracts of limited scope (see introduction to the Guide). However, the discussion in the Guide of certain issues (e.g. exemption clauses, liquidated damages and penalties) in the context of works contracts may assist in understanding such issues in the context of contracts of limited scope. For negotiating and drafting contracts of limited scope, other guides and manuals elaborated by certain United Nations organs or specialized agencies may be used, such as UNIDO, *Manual on the Use of Consultants in Developing Countries* (United Nations publication, Sales No. E.72.II.B.10), ECE, *Guide for Use in Drawing up Contracts relating to the International Transfer of Know-how in the Engineering Industry* (TRADE/222/Rev.1) (United Nations publication, Sales No. E.70.II.E.15), ECE, *Guide for Drawing up International Contracts on Consulting Engineering, including some Related Aspects of Technical Assistance* (United Nations publication, Sales No. E.83.II.E.3) and WIPO, *Licensing Guide for Developing Countries* (WIPO publication No. 620(E)).

2. Whichever approach is adopted, the purchaser will participate to some degree in the construction. At a minimum, he will be expected to provide a site and the power and water needed for the construction, and will usually be obligated to procure the permits and authorizations needed for the construction under the law of the country in which the construction takes place (see the chapters "Construction on site" and "Applicable law").

3. Certain factors are relevant to the choice of an approach to contracting, such as how the technology to be used in the works, or the design for constructing the works, is to be obtained and how the construction process is to be co-ordinated. These factors are considered in the discussion of the various approaches to contracting described below. In choosing an approach to contracting, the purchaser should also consider the pricing method to be adopted under the contract. Certain pricing methods may not be appropriate to certain approaches to contracting (see the chapter "Price"). Moreover, institutions financing the construction may require certain approaches to contracting in order to reduce their risks. In addition, the parties should take into account the incidence of tax liability under different approaches to construction. Under the tax legislation of some countries, the contractor's profits under a turnkey contract may be taxed at a different rate as compared with his profits under a contract with lesser obligations (e.g. a turnkey contract may be considered as a sale of the works, and the profits taxed accordingly). Taxes to be borne by the contractor will usually be reflected in the price required by the contractor.

4. There does not at present appear to be a uniformly accepted terminology for describing the various forms of international works contracts. In the account that follows, the main characteristics of the most important approaches to contracting are described. The parties may, however, find it appropriate in certain circumstances to vary these approaches, or to combine certain features of two or more of them.

B. Turnkey contract approach

5. Under the turnkey contract approach, a single contractor is engaged to construct the whole works; his obligations would normally cover the design of the works, the supply of an appropriate technological process to be used in the works, the supply of equipment and materials to be incorporated in the works, civil engineering, building, and erection of equipment. The contractor would be obligated to complete construction of the works by a specified date and in accordance with the contract (e.g. to construct works which will produce goods of a quality and quantity stipulated in the contract). The contractor would be liable where the works is not completed in time or is not in accordance with the contract, even if the failure was due to delay or defective performance by the contractor's sub-contractors or suppliers (see the chapters "Failure to perform" and "Exemptions").

6. If the turnkey contractor does not himself possess the technological process to be used in the works, he should be obligated to obtain it from a supplier and should be responsible for the performance of the technological process to the same extent as if the process were his own. If the technological process is highly complex, it may be necessary to enter into a turnkey contract with the technology supplier, since only the supplier may have the knowledge required to design and construct works embodying that technological process.

7. The main advantage of the turnkey contract approach for the purchaser is that a single entity is liable if the construction is not completed in time, or the works fail to operate as required under the contract. The turnkey contract approach may be useful especially in developing countries which are in the early stages of industrialization, where local technological capabilities are limited and where it is therefore important to ensure that complete responsibility for all aspects of the construction is assumed by a contractor having the necessary experience in the relevant field.

8. Where offers are solicited for the construction of the works on a turnkey basis, the purchaser will obtain the benefit of competition in respect of the design for the works, since each offer will generally reflect a different design. Under the comprehensive contract approach (see paras. 12 and 13, below) or the separate contracts approach (see paras. 16-21, below), a single design is usually provided by a professional, and offers are solicited for the construction on the basis of this design. Where a design is prepared by a turnkey contractor who is himself to effect the manufacture and construction pursuant to that design, the design is likely to result in construction which is economical and efficient, since the design will reflect manufacturing and construction economies, and construction techniques, available to the contractor. In addition, a turnkey contractor will have an incentive not to overdesign the works, since to do so would make his tender uncompetitive.

9. The turnkey contract approach may have certain disadvantages. For example, it may be difficult for the purchaser to evaluate and compare different turnkey offers, since each such offer will reflect a different design and a different combination of construction elements and methods. Furthermore, in their decisions on design, construction methods, and selection of sub-contractors, contractors may be motivated more by their desire to offer an attractive price than by such matters as the durability, reliability and ease of maintenance of the works.

10. Furthermore, the total cost of the works may be higher for the same scope of construction if the turnkey approach is adopted than if the separate contracts approach (see paras. 16-21, below) or the semi-turnkey contract approach (see paras. 22-25, below) is adopted. Under the turnkey contract approach, the contractor bears a high degree of risk, since he is obligated to effect the entire construction and to co-ordinate the construction process. The contractor will wish to insure

against such risk or provide financial reserves to cover the risk, and the costs of adopting these measures may be reflected in the price. Under the separate contracts approach and the semi-turnkey contract approach, however, the scope of construction undertaken by each contractor is more limited, and the risks involved in co-ordinating the construction process are borne (under the separate contracts approach) entirely or (under the semi-turnkey contract approach) partially by the purchaser. In addition, turnkey contractors would usually include in prices quoted by them an increment to cover their expenses in preparing and submitting unsuccessful offers on a turnkey basis for the construction of other projects.

11. In some countries, civil engineering or the supply of certain types of equipment or services for works to be constructed in those countries may be reserved for suppliers from those countries. Furthermore, purchasers in developing countries may wish that local enterprises be engaged as sub-contractors or suppliers in order to develop the technological capabilities of those enterprises and to conserve foreign exchange. However, because of the extensive obligations undertaken by him, a turnkey contractor may insist on the right to engage sub-contractors of his choice on whom he can rely. In such cases it may not be possible to enter into a turnkey contract.

C. *Comprehensive contract approach*

12. The term "comprehensive contract" is often used to refer to a contract under which a single contractor undertakes to construct the whole works in accordance with a design supplied by the purchaser. The technological process to be used in the works will also be supplied by the purchaser. In contrast to the turnkey contract approach, therefore, the comprehensive contractor will not be liable if the works are not in accordance with the contract due either to a defective technological process or defective design. He will only be liable if the construction is not completed in time and in accordance with the design.

13. The main advantage of the comprehensive contract approach for the purchaser is that, as under the turnkey contract approach, a single contractor is obligated to construct the entire works and to co-ordinate the construction process. An additional advantage of the comprehensive contract approach, as compared to the turnkey contract approach, is that offers made by contractors for a comprehensive contract can be easily compared, since the offers are based on the same design (see para. 9, above). Furthermore, under this approach, unlike under the turnkey contract approach, the professional preparing the design will not have an incentive to sacrifice considerations of durability, reliability and ease of maintenance of the works in order to achieve an attractive price. This professional, who can effectively check if the works is being constructed in accordance with the design, may be engaged by the purchaser to supervise the construction.

D. *Product-in-hand contract approach*

14. Under the product-in-hand contract approach (the French term *produit en main* is often used in practice), the contractor has the same responsibilities for the construction of the entire works and the co-ordination of the construction process as under a turnkey contract. In addition, he is obligated to show during a test period specified in the contract that the works can be operated and agreed production targets achieved by the purchaser's own staff, using the raw materials and other inputs that the purchaser would use. The product-in-hand contract, therefore, places extensive obligations on the contractor, including the obligation to train the purchaser's personnel, and to operate and to manage the works during the agreed test period. The acceptance of the works by the purchaser (see the chapter "Completion, take-over and acceptance") would occur only if the contractor successfully discharges these obligations. The use of the product-in-hand contract approach has, however, been limited in practice.

15. In general, the product-in-hand contract approach has all the advantages and disadvantages of the turnkey contract approach. Since the contractor must show that the purchaser's staff can operate and manage the works, this approach has the additional advantage that an effective transfer of technical and managerial skills may be achieved. However, as the contractor's obligations and risks are greater than under a turnkey contract, the total cost under the product-in-hand contract approach may be considerably higher than under the turnkey contract approach. Another disadvantage may be that the purchaser's freedom to select personnel to operate the works is limited, as the contractor may insist that the personnel for whose training he is responsible should be chosen by him.

E. *Separate contracts approach*

16. Under the separate contracts approach, the purchaser enters into one or more works contracts, and may in addition enter into one or more contracts of limited scope (see para. 1, above). Each contractor under a works contract would be responsible only for the equipment, materials and services supplied by him, and the technology transferred by him. Since the construction of the whole works is divided among two or more contracts, the purchaser must co-ordinate the scope and the execution of these contracts, and must bear the risk of defects in the works or delays in its construction resulting from a failure of such co-ordination.

17. The way in which the construction is to be divided among the various contractors will depend on the nature and size of the works, as well as on financial considerations. In general, the smaller the scope of the works, the fewer the number of separate contractors required and the easier it is for the purchaser to co-ordinate the scope and execution of the construction to be effected by the contractors. The risks connected with such co-ordination increase when a large number of

contractors or other persons participate in the construction.

18. In addition to a potentially lower cost (see para. 10, above), a significant advantage of the separate contracts approach for the purchaser is that he retains control over the construction, and the persons involved in it. In particular, he has more flexibility in making changes in the scope and manner of the construction than when all construction obligations are integrated within a single contract. Furthermore, purchasers from developing countries may engage local contractors for the construction of some portions of the works under the supervision of experienced foreign contractors engaged for the construction of other portions of the works. This may save foreign exchange and facilitate the transfer of technical and managerial skills to enterprises in the purchaser's country. In such cases, the respective responsibilities of the local contractors and the foreign contractor should be clearly stipulated in the contracts concluded by the purchaser in order to avoid disputes and difficulties during the construction process.

19. If the works fails to operate, the purchaser must discover which contractor is responsible for the failure in order to obtain a remedy. Since the construction to be effected by the several contractors is sometimes complex and interrelated, this may in some cases be difficult. Moreover, if a failure to perform by one contractor has repercussions on the work of the others, the purchaser may be liable to compensate the others for losses suffered by them, provided that they have performed or were ready to perform their contractual obligations. In respect of such compensation paid by him, the purchaser may be entitled to liquidated damages or penalties, or to indemnification, from the contractor who was responsible for the failure. However, the possibility of recourse by the purchaser against the contractor to recover compensation paid by the purchaser to other contractors may be limited by the contract or the applicable law. As a result, the purchaser may have to bear some portion of the damage caused to him by the contractor who failed to perform.

20. The purchaser may also wish to note that if the design of equipment is to be supplied by a person different from the contractor who is to supply and erect the equipment, in cases where the works is found to be incapable of operating in accordance with the contract, it may be difficult for the purchaser to prove whether this failure was due to a defect in the design or a defect in the equipment or its erection. This problem may be reduced by stipulating in the contract that such a contractor is obligated to notify the purchaser of defects in the design which he could reasonably discover.

21. The risks borne by the purchaser in connection with the co-ordination of the scope and execution of separate contracts may be reduced by employing a third person who is an expert in this field, such as a construction manager or a consulting engineer, to effect

such co-ordination. The obligations of such a third person may include planning, inviting tenders, co-ordinating site activities and checking the process of construction. He may also be given the responsibility to negotiate and conclude on behalf of the purchaser contracts with separate contractors who are to effect various portions of the construction. In the latter case, the third person should be made responsible for his negligence in the selection of the contractors but not for failures of performance by the contractors.

F. *Semi-turnkey contract approach*

22. The semi-turnkey contractor supplies the design for the works, undertakes to effect a major portion of the construction, and supplies the essential equipment needed for the use of the technological process. The semi-turnkey contractor must also define the scope and quality of the construction which is to be effected by others. Such construction would be effected by other contractors under individual contracts concluded by them with the purchaser. The purchaser may also effect some of the construction.

23. The semi-turnkey contractor also assumes certain responsibilities of a limited scope in regard to co-ordinating the construction process. He would usually, in agreement with the purchaser, define the scope of the work to be effected by each contractor engaged by the purchaser and provide specifications and a time schedule for such work. The semi-turnkey contractor may also undertake to check the construction effected by the other contractors, and to notify the purchaser of defects or delay in such construction which he could reasonably discover.

24. An advantage of the semi-turnkey contract approach is that the semi-turnkey contractor is responsible for handing over to the purchaser at an agreed time completed works which is in accordance with the contract. He would not be so responsible only if the construction to be effected by other contractors had not been effected in accordance with the design provided by the semi-turnkey contractor, or in accordance with the specifications and time schedule agreed upon between the semi-turnkey contractor and the purchaser.

25. As with the turnkey contract approach, an advantage of the semi-turnkey contract approach is that the design of the works and the supply of the essential equipment needed for the use of the technological process are effected by one person, resulting in manufacturing and construction economies. However, as with the turnkey contract approach, the fact that each contractor making an offer to construct on a semi-turnkey basis will submit his own design may make it more difficult to compare bids made by various semi-turnkey contractors (see para. 9, above). Another advantage of the semi-turnkey contract approach for the purchaser is that he maintains complete freedom to select contractors to construct the portions of the works which are not to be constructed by the semi-turnkey

contractor. In respect of the same scope of construction, the cost may, however, be higher than under the separate contracts approach, since under the latter approach the risks connected with co-ordination are entirely borne by the purchaser.

[A/CN.9/WG.V/WP.15/Add.9]

Completion, take-over and acceptance

Summary

The contract should clearly establish when completion, take-over and acceptance occur and the legal consequences of their occurrence. In general, the contract may provide that the completion of construction occurs when equipment, materials and services required under the contract have been supplied by the contractor, and such supply has been proved through successful mechanical completion tests. The contract may provide that take-over occurs when the purchaser takes physical possession, either of the works after completion of construction or of the plant before completion of construction. Acceptance may occur if the purchaser indicates his approval of the construction. However, such approval may be deemed to have been given in certain circumstances (paragraph 1).

Whether completion, take-over and acceptance should all occur, as well as the sequence in which these events should occur, depends on a number of factors, and in particular upon the choice of approach to contracting made by the purchaser (paragraphs 2 and 3).

When the contractor considers the construction to have been completed, he should be obligated to notify the purchaser and to prove such completion through the conduct of successful mechanical completion tests. It is desirable that the contract set forth the procedures to be followed in conducting such tests. The construction may be considered to be completed even if the mechanical completion tests disclose that certain minor items have not been supplied (paragraphs 4 to 11).

The results of the mechanical completion tests should be reflected in a protocol signed by both parties. However, if the purchaser fails to attend the tests, a protocol may be signed by the contractor and sent promptly to the purchaser (paragraph 12). The contract should establish the time at which construction may be considered to have been completed (paragraph 13).

The purchaser usually takes over the works after completion of construction. After take-over, the works are usually operated for a trial period. In some cases, however, the works may be taken over by the purchaser after acceptance. If the contract provides for a trial operation period, it should also provide for the allocation of costs connected with the operation of the works during this period (paragraphs 14 to 16).

In some cases, the plant may be taken over before completion of construction, such as when the contract is

terminated by the purchaser due to a failure by the contractor to perform his obligations in accordance with the contract or when the purchaser, as a remedy for a failure to perform by the contractor, chooses to complete the construction by engaging a new contractor at the expense and risk of the contractor (paragraphs 17 and 18).

In all cases of take-over it may be advisable for the contract to require a take-over protocol (paragraph 19). The contract should provide for the legal effects of take-over (paragraph 20).

Acceptance of the construction by the purchaser normally indicates the end of the construction process. The contract should set forth the circumstances in which acceptance is to occur (paragraphs 21 and 22).

The contract should establish the timing of the performance tests and the procedures to be followed in conducting such tests (paragraphs 24 to 31).

The contract should clearly stipulate when acceptance occurs, as well as the legal effects of acceptance (paragraphs 32 to 34; see also paragraph 23). It may be advisable for the contract to require an acceptance protocol, signed by both parties, in which the acceptance of the construction by the purchaser would be confirmed (paragraphs 35 and 36).

* * *

A. General remarks

1. The contract should clearly establish when completion, take-over and acceptance occur, and the legal consequences of their occurrence. In general, the contract may provide that the completion of construction occurs when equipment, materials and services required under the contract have been supplied by the contractor and such supply has been proved through successful mechanical completion tests. The contract may provide that take-over occurs when the purchaser takes physical possession, either of the works after completion of construction or of the plant before completion of construction (e.g. upon termination of the contract). The contract may provide that acceptance occurs if the purchaser indicates his approval of the construction. However, such approval may be deemed to be given in certain circumstances.

2. Whether completion, take-over and acceptance should all occur, as well as the sequence in which these events should occur, depends upon a number of factors and in particular upon the choice of approach to contracting made by the purchaser (see the chapter "Choice of contract type"). In general, completion of construction should occur first, such completion being proved by mechanical completion tests. The purchaser may have chosen an approach to contracting under which a single contractor is to effect the entire construction (e.g. turnkey contract approach or comprehensive contract approach) or the major portion of the

construction (e.g. semi-turnkey contract approach). In such cases it is usual that after completion the purchaser takes over the works, and that the works is operated for a trial period. At the end of the trial period, performance tests are conducted, and if these are successful, acceptance occurs. In certain cases, however, this sequence may not be followed. The period of trial operation may take place prior to take-over in cases where the contractor is in physical possession of the works during the trial period (e.g. under the product-in-hand contract approach, where the contractor has undertaken to train the purchaser's personnel to operate the works). At the end of the trial period, performance tests are conducted, and if these are successful, acceptance and take-over occur. In some cases, the contract may not provide for a trial operation period; in such cases, acceptance may occur after successful performance tests following completion, with take-over occurring after acceptance. Furthermore, in the cases where the contract is terminated before completion of construction, only take-over by the purchaser may occur.

3. If the separate contracts approach to contracting is chosen by the contractor, different situations may occur which need to be distinguished. The separate contractor may, during the portion of the construction to be effected by him, be in physical possession of the plant. In such cases, after completion of the portion of the construction, the purchaser may take over the plant. Such take-over may be followed by acceptance, if performance tests can be conducted in respect of the plant and the tests are successful. In many cases, however, it may be possible to conduct performance tests only after the entire construction has been completed. In such cases, take-over may occur after completion of the portion of construction, but performance tests and acceptance would not occur until after the entire construction has been completed. In some cases, several separate contractors will be effecting construction on the site simultaneously, and the purchaser will be in physical possession of the plant. In such cases, no take-over by the purchaser would be necessary, and completion may, at an appropriate stage, be followed by acceptance.

B. Completion of construction

1. Proof of completion: mechanical completion tests

4. When the contractor considers the construction to have been completed, he should be obligated to notify the purchaser and to prove such completion through the conduct of successful mechanical completion tests. The construction may be considered to be completed even if the mechanical completion tests disclose that certain minor items (i.e. items the absence of which does not prevent the conduct of performance tests or the operation of the works) have not been supplied. The absence of these items may be considered not as delay in completion, but as defects in the works (see the chapter "Failure to perform").

5. It is desirable that the contract set forth the procedures to be followed in conducting mechanical completion tests. These tests should usually include such of the following as are appropriate to the construction effected: visual inspection of the works and its components; checking and calibration of instruments; safety tests; dry runs; mechanical operation of the works and its various components; inspection of the technical documentation which the contractor has to supply for operation and maintenance of the works (e.g. as-built plans, manuals of instruction, and lists of spare parts); and inspection of the stock of spare parts and materials which the contractor may have to deliver with the works.

6. The contract may obligate the contractor to perform mechanical completion tests required by the purchaser which are additional to, or deviate from, the tests described in the contract. However, if such additional or modified tests are not standard practice in the industry in relation to the works which has been constructed, the contractor should be entitled to disclaim liability for damage which may be caused to the works by such tests.

7. In general, the costs connected with conducting mechanical completion tests should be borne by the contractor. However, the purchaser may undertake to supply at his expense some materials and energy needed for the operation of the works during the tests. The contract should determine which party is to bear the costs of additional or modified tests. The contractor may be obligated to bear such costs if such tests are standard practice in the industry.

8. Mechanical completion tests should be conducted within a specified period of time after the notification of completion by the contractor. If the parties fail to agree upon a date within this period of time for the commencement of the tests, the tests should commence on the last day of such period. In some cases, the parties may wish to stipulate in the contract that the mechanical completion tests in respect of some portions of the construction may be conducted even before completion of the entire construction to be effected under the contract.

9. The contractor should be responsible for conducting the mechanical completion tests. The tests should be conducted in the presence of both parties. If the purchaser fails to attend the tests, the contractor should be entitled to conduct the tests in the absence of the purchaser. In such a case, the contractor should be obligated promptly to inform the purchaser of the results of the tests. However, if the purchaser is prevented from attending the tests by an exempting impediment (see the chapter "Exemptions"), he should be entitled to ask within a specified or reasonable period of time after the occurrence of the exempting impediment that the tests be postponed or repeated at his own expense.

10. If successful mechanical completion tests cannot be conducted at the time provided for in the contract

due to causes for which the contractor is responsible, and the tests must be extended, postponed or repeated, all costs incurred by the purchaser which he would not have incurred if the tests had not been extended, postponed or repeated should be borne by the contractor. If the tests must be extended, postponed or repeated due to causes for which neither party is responsible, the costs of the tests should be borne as set forth in the contract, and each party should bear any additional costs incurred by him. If the tests must be extended, postponed or repeated due to causes for which the purchaser is responsible, the purchaser should bear all costs incurred by the contractor which the contractor would not have incurred if the tests had not been extended, postponed or repeated. In addition, the contract may provide that the construction is presumed to be completed if the tests cannot be conducted, due to causes for which the purchaser is responsible, after the expiry of a specified period of time commencing to run on the date when the tests were originally scheduled to begin.

11. If certain formalities (e.g. the participation of an inspecting organisation) are required for the conduct of the mechanical completion tests, and such formalities cannot be complied with due to causes for which the contractor is not responsible, the tests should be conducted without complying with the formalities, unless mandatory rules in force in the country of the site require compliance with such formalities.

2. Mechanical completion test protocol

12. The results of the mechanical completion tests should be reflected in a protocol signed by both parties, unless the purchaser has failed to attend the tests. The protocol should indicate the results of the mechanical completion tests and specify the items which were discovered to be missing and the period of time within which they should be supplied. The protocol should indicate the date when the tests were completed. If the tests are unsuccessful, the protocol may indicate a date when the tests are to be repeated. Any differences concerning the readings or the evaluation of the tests should be reflected in the protocol. In case of such differences, the contract should provide that either party may call immediately upon an independent expert to make the necessary assessment of the facts (see the chapter "Settlement of disputes"). If the purchaser fails to attend the tests, a protocol may be signed by the contractor and sent promptly to the purchaser.

3. Time of completion of construction

13. If the results of the mechanical completion tests are successful, the construction may be considered to have been completed as of the date proposed by the contractor for the commencement of the tests or, alternatively, on the date of the completion of the tests. However, if the latter date is chosen as the date of completion, the contract should provide that if, due to obstacles for which the contractor is not responsible,

the tests cannot be completed by the time set forth in the contract for the completion of construction, the contractor is not to be regarded as being in delay in completion.

C. *Take-over of works*

1. *Take-over after completion of construction*

14. The purchaser usually takes over the works upon completion of construction. The parties may wish to provide in the contract that the works is to be taken over within a specified period of time after completion of successful mechanical completion tests. After take-over, the works are usually operated for a trial period. The trial operation enables the works to be run in and reach normal operating conditions. Performance tests may thereafter be conducted, and the performance of the works will be evaluated under normal operating conditions. The trial operation also enables the purchaser's personnel to become fully acquainted with the works. The contractor should be obligated to provide technical supervision during the trial operation.

15. In some cases (e.g. when the contractor undertakes to train the purchaser's personnel to operate the works), the works may remain in the physical possession of the contractor during the trial operation period, and the works may be taken over by the purchaser only after the conduct of successful performance tests and acceptance of the construction by the purchaser. In such cases, the contractor may be obligated, in addition to training the purchaser's personnel, to operate, protect, and maintain the works. The works may also be taken over by the purchaser after his acceptance of the construction in cases where the contract does not provide for a trial operation period. The contract should obligate the purchaser to take over the works within a short period of time, to be specified in the contract, after acceptance.

16. The contract should provide for the allocation of costs connected with the operation of the works during the trial period. How the costs should be allocated may depend upon the pricing method (see the chapter "Price") used in the contract (e.g. under the product-in-hand contract approach, the costs of training the purchaser's personnel during this period would be borne by the contractor). The output of the works should be owned by the purchaser. The contract should specify the length of the trial operation period and the circumstances in which such period may be extended.

2. *Take-over before completion of construction*

(a) *Take-over in case of termination of contract*

17. Where the purchaser terminates the contract due to a failure by the contractor to perform his obligations in accordance with the contract, or where the contract is terminated for other reasons, e.g. due to the continuance of exempting impediments for a specified

period of time (see the chapter "Termination"), the purchaser should take over the plant already constructed to the extent that it can be used in the completion of the construction. Take-over should be effected within a short period of time, to be specified in the contract, after the termination has become effective. However, in the case of termination of the contract by the contractor due to a failure of performance by the purchaser, the purchaser should not be entitled to take over the plant if such take-over would be inconsistent with the rights of the contractor arising from such a failure (e.g. with the rights of the contractor under a reservation of ownership; see the chapter "Transfer of ownership of property").

(b) *Take-over in case of completion of construction at contractor's expense and risk by another contractor*

18. If the contract enables the purchaser, as one of his remedies in the event of a failure to perform by the contractor, to complete the construction by a new contractor at the expense and risk of the contractor, the contract should provide that if the purchaser chooses this remedy, the purchaser should take over the plant at the time when the contractor leaves the site (see the chapter "Failure to perform").

3. *Take-over protocol*

19. In all cases of take-over it may be advisable for the contract to require a take-over protocol, to be signed by both parties, which would indicate the date of take-over and the condition of the works at the time of take-over. However, a separate protocol may not be needed if take-over is to occur immediately after the acceptance of the construction. In such cases, the take-over may be reflected in an acceptance protocol (see paras. 35 and 36, below).

4. *Legal effects of take-over*

20. The main legal effect of the take-over of the works by the purchaser should be that the risk of loss of or damage to the works passes from the contractor to the purchaser (see the chapter "Allocation of risk of loss or damage"). In addition, take-over may give rise to an obligation of the purchaser to pay a portion of the price (see the chapter "Price"). Take-over, and the consequential passing of risk, may also affect the insurance covering the works (see the chapter "Insurance"). The date of take-over may be relevant to determining the commencement of the trial operation period (see para. 14, above).

D. *Acceptance of construction*

21. Acceptance of the construction by the purchaser normally indicates the end of the construction process. Acceptance may occur where the purchaser approves the construction, or where the contract deems acceptance to have occurred.

22. Where the separate contracts approach is adopted, if different portions of the construction are completed at different times and these portions can be tested (if performance tests are to be conducted in respect of such portions) and operated independently, the contract may provide for each portion to be accepted separately. In such cases, the same rules should apply as in respect of acceptance of the entire construction. In some cases, however, it may not be possible to test or put into operation the equipment supplied and erected by one of the contractors before the entire construction is completed. In such cases, the conduct of performance tests and acceptance should not occur until the completion of the entire construction.

23. It is generally not advisable for the contract to provide for provisional acceptance (i.e. acceptance subject to certain conditions, such as the cure by the contractor of defects discovered during performance tests). Take-over could achieve the same objectives as those intended to be achieved through provisional acceptance. Provisional acceptance could result in undesirable consequences, such as the termination of a security for performance or of an insurance policy which is to terminate upon acceptance. If the parties do prefer to provide for provisional acceptance, the contract should define the situations in which provisional acceptance may occur and what its effects are to be. The contract should clarify in particular whether the legal effects of acceptance (see para. 34, below) are to be postponed until the time when the condition giving rise to the provisional nature of the acceptance is satisfied.

1. *Performance tests*

24. The purpose of performance tests is to show that the works meets the performance standards specified in the contract. These performance standards may relate not only to the output and its qualities but also to a number of other parameters, such as consumption of energy and feedstock or other materials. The tests may also be intended to demonstrate the performance of the works under a variety of conditions.

25. The contractor should be responsible for conducting the performance tests at his own expense. The purchaser may, however, undertake to supply some materials and energy needed for the operation of the works during the tests. The contract should provide that the performance tests are to commence at the end of the trial operation period, if any. If no trial operation is to be provided, the contract should specify a period of time after successful mechanical completion tests have been conducted within which performance tests should commence. The contract should provide that if the parties fail to agree on a date for the commencement of the tests within this period of time, the tests should commence on the last day of such period.

26. The contract should set forth the procedures for the conduct of the performance tests. It should establish

the duration of the tests, the criteria for performance, the methods of measurement and analysis, the tolerances and the number of times unsuccessful tests may be repeated. The performance tests should be considered to be successful if the performance standards specified in the contract with permitted tolerances are met.

27. It is not infrequent that, due to variations in the course of construction of the works and due to differences in feedstock, materials and energy supply, the parameters for the performance of the works as finally constructed differ from those originally specified. For example, during the course of construction of the plant the purchaser may decide on a different source for raw materials and feedstock, or his own raw materials and feedstock may have characteristics different from those originally considered. Such differences will affect the performance and the output of the works, and the performance tests procedures, to the extent possible, should provide for appropriate adjustments in such cases.

28. The performance tests should be conducted in the presence of both parties. If the purchaser fails to attend the performance tests, the contractor may be entitled to conduct the tests in the absence of the purchaser. In such a case, the contractor should be obligated promptly to inform the purchaser of the results of the tests. However, if the purchaser is prevented from attending the tests by an exempting impediment (see the chapter "Exemptions"), he should be entitled to ask within a specified or a reasonable period of time from the occurrence of the exempting impediment that the tests be postponed or repeated at his own expense.

29. If successful performance tests cannot be conducted at the time provided for in the contract due to causes for which the contractor is responsible and must be extended, postponed or repeated, all costs incurred by the purchaser which he would not have incurred if the tests had not been extended, postponed or repeated should be borne by the contractor. If the performance tests must be extended, postponed or repeated due to causes for which neither party is responsible, the costs of the tests should be borne as set forth in the contract, and each party should bear any additional costs incurred by him. If the performance tests must be extended, postponed or repeated due to causes for which the purchaser is responsible, the purchaser should bear all costs incurred by the contractor which the contractor would not have incurred if the tests had not been extended, postponed or repeated.

30. If certain formalities (e.g. the participation of an inspecting organisation) are required for the conduct of the performance tests and such formalities cannot be complied with due to causes for which the contractor is not responsible, the tests should be conducted without complying with such formalities, unless mandatory rules in force in the country of the site require compliance with such formalities.

2. *Performance test protocol*

31. The test procedures, readings and results should normally be recorded and evaluated and be set forth in a performance test protocol. The protocol should be signed by both parties, unless the purchaser has failed to attend the tests. The protocol should indicate the date when the tests were completed. If the tests are unsuccessful, the protocol may indicate a date when the tests are to be repeated. Any differences concerning the readings or the evaluation of the tests should be reflected in the protocol. In case of such differences, the contract should provide that either party may call immediately upon an independent expert to make the necessary assessment of the facts (see the chapter "Settlement of disputes"). If the purchaser fails to attend the tests, a protocol may be signed by the contractor and sent promptly to the purchaser. Instead of executing a performance test protocol, however, the parties might wish in appropriate cases to include the results of the performance tests in an acceptance protocol (see paras. 35 and 36, below).

3. *Time of acceptance*

32. As acceptance of the works has significant legal effects, the contract should clearly stipulate when acceptance occurs. If an acceptance protocol is signed by both parties, the time of acceptance should be the date indicated in the protocol. If no such date is indicated in the protocol, the date on which the protocol was signed by the parties may be considered to be the time of acceptance. If no acceptance protocol is signed by the parties (e.g. due to a failure by the purchaser to attend the performance tests or a dispute between the parties as to whether the performance tests were successful), the date on which the performance tests have been successfully completed should be considered as the time of acceptance.

33. If the performance tests cannot be conducted on the scheduled date for causes for which the purchaser is responsible, and this impossibility persists for a period of time to be specified in the contract, acceptance may be considered to occur on the date when a notice to that effect is delivered by the contractor to the purchaser, provided such delivery is effected after expiry of such period of time. If the performance tests cannot be conducted on the scheduled date for causes for which neither party is responsible and this impossibility persists for a period of time to be specified in the contract, the contract may provide that the works should be put into operation and, if operated successfully during the period of time during which the performance tests were to be conducted, that acceptance occurs after expiry of such period, provided that the performance standards achieved during such operation correspond to the performance standards required in the contract. In cases where performance tests are not required under the contract and the purchaser does not approve the construction within a specified period of time, acceptance may be considered to occur at the time when completion of construction is proved, unless

serious defects in the works have been discovered which entitle the purchaser to refuse to accept the works (see the chapter "Failure to perform").

4. *Legal effects of acceptance*

34. The contract should clearly set forth the legal effects of acceptance. The period for the quality guarantee in respect of the works should generally commence to run at the time of acceptance. This may also apply to a quality guarantee in respect of a portion of the construction (e.g. a power station) if such a portion is to be operated by the purchaser even before completion of the entire construction. However, if such an accepted portion of the construction is not to be operated until completion of the entire construction, the guarantee period should commence to run at the time of acceptance of the entire construction. In some cases, the contractor may be obligated to insure the plant against risk of loss or damage during construction and the works from the time of completion until the works has been accepted by the purchaser. The purchaser may be obligated to pay a portion of the price within a specified period of time after acceptance (see the chapter "Price"). The purchaser may be obligated to take over the works after acceptance if take-over had not previously occurred.

5. *Acceptance protocol*

35. It may be advisable for the contract to require an acceptance protocol, signed by both parties, in which the acceptance of the construction by the purchaser would be confirmed. A protocol which is binding on both parties is preferable to a unilateral act evidencing acceptance. Such a protocol would minimize disputes as to whether and on what date the works had been accepted. In addition, by means of an acceptance protocol, the purchaser could indicate his acceptance of the construction in cases where acceptance would not otherwise occur.

36. The acceptance protocol should identify the construction which has been accepted by the purchaser and indicate the date of acceptance. Normally, this should be the date when the performance tests have been successfully completed. The acceptance protocol may evaluate the results of the performance tests if these results have not already been evaluated in a performance test protocol (see para. 31, above). Where the purchaser has decided to accept the works despite certain defects, the acceptance protocol may contain a list of the defects in the works, e.g. a list of the items discovered during the mechanical completion tests to be missing (unless they had been supplied prior to acceptance) (see para. 4, above), as well as the defects discovered during the performance tests. In addition, it may be advisable to include in the protocol a time schedule for the supply of the missing items and the cure of the defects, unless the parties have agreed to other remedies such as a reduction of the price. If the parties differ as to certain issues, such as the time

schedule for the cure of discovered defects, the protocol should reflect the views of both parties and the differences should be settled in dispute settlement proceedings (see the chapter "Settlement of disputes"). The protocol may also indicate certain measures to be taken by the parties in connection with acceptance, e.g. assignment of rights under an insurance policy.

[A/CN.9/WG.V/WP.15/Add.10]

Procedure for concluding contract

Summary

There are in practice two basic approaches to the conclusion of a works contract. Under the first approach, the purchaser invites tenders from enterprises to construct the works, and the contract is concluded on the basis of the tender selected by the purchaser in formal tender procedures. The participants in such procedures (i.e. the purchaser and the tenderers) are subject to certain legal obligations and liabilities. Under the second approach, the purchaser negotiates the contract in its entirety with enterprises selected by him without formal tender procedures. Participants in negotiation procedures are not subject to many of the obligations and liabilities to which participants in tender procedures are subject. Under the tender approach, the purchaser may choose the open tendering system, under which all interested enterprises are invited to submit tenders for the construction of the works. Alternatively, the purchaser may prefer the limited tendering system, under which only certain enterprises are invited by the purchaser to submit tenders (paragraphs 1 to 8).

Under a variant of the open tendering system, the opportunity to submit tenders may be restricted to enterprises which have been pre-qualified by the purchaser in accordance with pre-qualification procedures. Under these procedures, the purchaser should advertise internationally an invitation to apply for pre-qualification. Enterprises applying to be pre-qualified may be required to complete a questionnaire which seeks to elicit relevant information about the enterprise. The replies to questionnaires submitted by enterprises should be evaluated by the purchaser in accordance with criteria for pre-qualification which have been established by the purchaser. The purchaser should send all enterprises which have been pre-qualified notices informing them of their pre-qualification and inviting them to submit tenders, together with a full set of documents to be provided to prospective tenderers (paragraphs 5 and 9-13).

Under the tendering approach, an invitation to tender should be communicated to enterprises whose tenders are solicited. Under the open tendering system, the invitation should be communicated by means of an international advertisement. Under the limited tendering system, the invitation to tender should be individually sent to enterprises selected by the

purchaser, accompanied by a full set of documents to be provided to prospective tenderers (paragraphs 14 to 16).

The documents to be provided to prospective tenderers usually include, *inter alia*, instructions to tenderers conveying information with respect to the preparation, contents, submission and evaluation of tenders; draft forms of the documents which are to be submitted by the tenderer with his tender (e.g. tender guarantee and tender); and a document containing contractual terms. The instructions should specify that by submitting a tender a tenderer agrees to conform to and be bound by all the requirements, terms and conditions set forth in the instructions. The draft form of tender should also contain an express undertaking to the same effect (paragraphs 17 to 24).

The most common method of opening tenders is public opening, although private opening may be justified by exceptional circumstances. After tenders are opened, they should be compared and evaluated with a view to identifying the tender which complies with the purchaser's requirements and is most acceptable to him. The evaluation process usually takes place in certain stages: preliminary screening, detailed evaluation, discussions with the most acceptable tenderer, post-qualification and selection of the successful tenderer (paragraphs 25 to 34).

Under the negotiation approach, the contractor contacts a certain number of enterprises which he judges to be capable of constructing the works, informs them of his requirements, and requests offers. Documents describing the scope and quality of the construction and containing the contractual terms required by the purchaser may be submitted to the enterprises. No formalities are prescribed for making or evaluating the offers, or for negotiating the contract (paragraphs 35 and 36).

Even if the law governing the formation of the contract does not require the contract to be in written form, the parties should reduce their agreement to writing. The contract should identify the written documents which constitute the contract and should provide that no other documents and no oral statements form part of the contract. The contract should also provide that it may be modified or terminated only by agreement in writing. In some cases, the parties may wish to agree that contractual obligations are to arise only as from the date when a specified condition is fulfilled within a period of time set forth in the contract (paragraphs 37 and 38).

* * *

A. General remarks

1. There are in practice two basic approaches to the conclusion of a works contract. Under the first approach, the purchaser invites tenders from enterprises to construct the works, and the contract is concluded on the basis of the tender selected by the purchaser in formal tender procedures. Tenders submitted by

enterprises are usually based upon contractual terms and technical factors required by the purchaser, although certain details may be open to discussion by the purchaser and the enterprise (see paras. 24 and 32, below). One aspect of the formality of tender procedures is that the participants in such procedures (i.e. the purchaser and the tenderers) are subject to certain legal obligations and liabilities, e.g. with respect to the submission, withdrawal and selection of tenders (see paras. 19 to 22, below). Under the second approach, the purchaser negotiates the contract in its entirety with enterprises selected by him without formal tender procedures. Participants in negotiation procedures are not subject to many of the obligations and liabilities to which participants in tender procedures are subject.

2. Under the tender approach, the purchaser may choose the open tendering system, under which all interested enterprises are invited, by means of an internationally advertised notice, to submit tenders for the construction of the works. Alternatively, the purchaser may prefer the limited tendering system, under which only certain enterprises are invited by the purchaser to submit tenders. It should be noted that tender procedures may be regulated by mandatory rules of law in some countries, particularly when the purchaser is a public entity.

3. One advantage of the open tendering system is that it enables a broader range of enterprises to compete in tendering for the construction of the works. The purchaser will usually benefit from greater competition among enterprises with respect to the price, the design, and other factors relevant to the construction of the works. However, even under this system, there may exist certain limitations with respect to the enterprises which are permitted to participate in tendering. For example, some international financing institutions may require that preference be given to local or regional enterprises.

4. A disadvantage of the open tendering system is that it is the most complex, formal and costly of the procedures for the conclusion of a works contract. This procedure involves the preparation of formal tender documents, international advertisement of the invitation to bid, public opening of tenders and evaluation of all tenders submitted, which in some projects may be numerous. It also requires strict adherence to time-limits and other procedural requirements. In addition, the open tendering system sometimes attracts tenders from unqualified enterprises who submit low tenders of a speculative character. The purchaser has the task of investigating and eliminating such tenders. Correspondingly, qualified and reputable enterprises are sometimes unwilling to submit tenders when tendering is open to all enterprises.

5. Under a variant of the open tendering system, the opportunity to submit tenders may be restricted to enterprises which have been pre-qualified by the purchaser in accordance with pre-qualification procedures (see paras. 9 to 13, below). Under this technique, all

interested enterprises worldwide are given an opportunity to pre-qualify, and enterprises who are pre-qualified are entitled to submit tenders for the construction of the works. This technique enables the purchaser to limit participation in tendering to qualified enterprises. It also may enable the purchaser to assess, prior to the commencement of tendering procedures, the degree of interest in the project by enterprises.

6. The limited tendering system affords the advantage of some competition among tendering enterprises, although the extent of such competition is usually less than under the open tendering system due to the limited number of enterprises which are accorded the opportunity to submit tenders. Furthermore, to the extent that the purchaser has discussed the scope and quality of the works to be constructed with potential tendering enterprises, the documents to be provided to prospective tenderers (see para. 17, below) may be simplified as compared with those required under the open tendering system. The limited tendering system also has the advantage of confining the tender process to enterprises which the purchaser considers to be qualified and reputable. However, the limited tendering system also entails certain formalities, although these may be somewhat less than under the open tendering system. For example, under the limited tendering system the invitation to tender is delivered to enterprises selected by the purchaser; advertisement of the invitation is not necessary. It should be noted that international financing institutions might not permit the use of the limited tendering system in some cases. This system may be suitable where the technology to be incorporated in the works can be supplied, or the construction can be effected, only by a limited number of enterprises.

7. Negotiation of the works contract with potential contractors avoids the formalities of the tender approach. Under the negotiation approach, the purchaser need not prepare documents to be provided to prospective tenderers (see para. 17, below), although it will usually be advantageous for him to draft certain documents to serve as the basis for negotiations (see para. 35, below). Under this approach, however, the purchaser does not benefit to the same degree as under the tendering approach from competition among several enterprises with respect to the price, design and other factors in relation to the works.

8. The use of the negotiation approach may be appropriate where one potential contractor has a satisfactory record of constructing works similar to the works to be constructed for the purchaser, and where no further advantages are to be gained by inviting tenders from other enterprises. The approach may also be appropriate where the equipment or technology to be included in the works may be obtained only from one or a limited number of enterprises. It may also be appropriate where the envisaged construction is to extend the capacity of, or modernize, existing works and such construction must, therefore, conform to the existing technological process or equipment; in some cases, only the contractor who constructed the existing

works may be able to perform the required new construction. In exceptional cases, the need for early completion of the works may also justify engaging a contractor without prior tendering, as tendering would in most cases require more time for the conclusion of a contract than would the negotiation approach.

B. Tendering

1. Pre-qualification

9. Pre-qualification of potential tendering enterprises is sometimes resorted to under the open tendering system (see para. 5, above). Pre-qualification should be based upon the ability of the enterprise to construct the works as required by the purchaser. It may be noted in this connection that international financing institutions may prohibit a purchaser from denying pre-qualification to an enterprise for reasons unrelated to the ability of the enterprise to construct the works. In assessing an enterprise's ability to construct the works, the purchaser should consider the enterprise's experience and past record of performance, its capability of supplying the necessary technology, equipment, materials and services, and its financial status.

10. The first step in the pre-qualification process should be the international advertisement of an invitation to apply for pre-qualification. The factors to be considered with respect to the advertisement should be similar to those to be considered with respect to the advertisement of an invitation to tender (see paras. 15 and 16, below). The invitation to apply for pre-qualification should contain the following information:

Information concerning the purchaser;

A brief description of the location, nature and size of the works to be constructed;

The expected time for completion of construction;

The address at which the pre-qualification questionnaire (see following paragraph) may be obtained;

The date for submission of replies to the pre-qualification questionnaire.

11. In order to enable the purchaser to make a well-considered judgement on whether to pre-qualify an enterprise, it is desirable that the purchaser require enterprises applying to be pre-qualified to complete a questionnaire which seeks to elicit relevant information about the enterprise. Such a questionnaire should be sent by the purchaser to enterprises applying to be pre-qualified and should elicit, in particular, the following information:

A description of the enterprise, its structure and organization, and its length of experience as a contractor;

A certified financial statement showing the assets and liabilities of the enterprise; its volume of business in the previous five years; its working capital; bankers' references;

The numbers and categories of supervisory staff and key personnel proposed to be employed for the construction of the works and their experience in construction of industrial works;

The source and nature of the main items of machinery and tools proposed to be used in the construction;

A list of projects of comparable size and complexity which the enterprise has completed in the previous five years; the identities of the purchasers and the consulting engineers in those projects; the final contract price and the final costs for each of those projects; if the final contract price for a project was higher than the original contract price, the reasons therefor; whether each project was completed satisfactorily; similar information on the record of performance of the principal sub-contractors proposed to be employed in the construction of the works;

Whether the enterprise has ever failed to complete work under a construction contract to which he was a party;

Existing and anticipated work commitments;

The nature and amount of existing insurance coverage.

12. The questionnaire sent to enterprises should be accompanied by instructions for its completion, including the language to be used in completing the questionnaire and the currency in which financial information is to be expressed.

13. The replies to questionnaires submitted by enterprises should be evaluated by the purchaser in accordance with criteria for pre-qualification which have been established by the purchaser. When the construction of the works is financed by an international financing institution, these criteria should be in accordance with any guidelines or requirements which may be set forth by the institution. After evaluating the replies to the questionnaire, the purchaser should notify unsuccessful enterprises that they have not been pre-qualified and should send all enterprises which have been pre-qualified notices informing them of their pre-qualification and inviting them to submit tenders. At the same time, the purchaser should send to enterprises which have been pre-qualified a full set of documents to be provided to prospective tenderers (see para. 17, below).

2. Invitation to tender

14. An invitation to tender should be communicated to enterprises whose tenders are solicited. Under the open tendering system, the invitation to tender should be communicated by means of an international advertisement. Under the limited tendering system, the invitation to tender should be individually sent to enterprises selected by the purchaser, accompanied by a full set of documents to be provided to prospective tenderers. The invitation to tender is often prepared by the purchaser's consulting engineer. It should contain the following information:

Information concerning the purchaser;

A brief description of the location, nature and size of the works to be constructed;

The expected time for completion of construction;

The address at which documents for prospective tenderers may be obtained;

The fee, if any, for the documents and the method of payment of such fee (the amount of the fee should normally cover the costs of producing and supplying the documents, yet should be at such a level as to discourage enterprises which are not genuinely interested in undertaking the construction from requesting the documents);

The date for submission of tender;

The amount of the tender guarantee, if any;

The source of financing for the construction of the works, and any eligibility criteria imposed by a financing institution.

15. When the invitation to tender is to be advertised, the advertisement should be designed so as to provide an opportunity to all potentially interested enterprises worldwide to participate in the tender procedures. With respect to the media in which the advertisement is to appear, the law of the purchaser's country may mandatorily require advertisement in certain media (e.g. the official gazette). The purchaser should also consider advertising in local newspapers, foreign newspapers circulated in the major commercial centres of the world, technical journals and trade publications. If the construction is being financed by an international financing institution, the purchaser should also comply with any advertisement requirements of the institution.

16. The invitation to tender should specify the time within which enterprises must prepare and submit their tenders to the purchaser. This time may depend upon the location of the site and the scope and complexity of the works to be constructed. In practice, purchasers often allow a period of between 45 and 90 days. This period of time may commence on the date of the invitation to tender. Alternatively, and in particular if the invitation to tender is advertised, the invitation to tender might specify a date by which tenders must be submitted to the purchaser. The timing of the submission of the advertisement to the various media should take into account the fact that different media may publish at different intervals (e.g. daily, monthly, quarterly), and the timing should be such that the advertisement is published at approximately the same time in all the media. All enterprises will then have approximately the same amount of time to obtain the documents to be provided to prospective tenderers and to prepare and deliver their tenders to the purchaser.

3. *Documents to be provided to prospective tenderers*

17. The documents to be provided to prospective tenderers are often prepared by the purchaser's consulting engineer. They usually consist of the following: instructions to tenderers (see paras. 18 to 22, below), contractual terms required by the purchaser (see para.

23, below), technical specifications, drawings, draft form of tender guarantee (see para. 20, below) and performance guarantee, draft form of tender (see para. 24, below), draft form of certificate of authority (certifying that persons signing the tender have the necessary authority to do so), schedules of supplementary information and such other documents as are appropriate. The provision of draft forms of the documents which are to be submitted by the tenderer with his tender will assist the purchaser in comparing and evaluating tenders. When there have been no pre-qualification procedures, the purchaser should also supply prospective tenderers with a questionnaire, similar to a pre-qualification questionnaire (see para. 11, above), which a tenderer should be required to submit with his tender. The documents should be made available in at least one language customarily used in international commercial transactions.

18. The instructions to tenderers should convey information with respect to the preparation, contents, submission and evaluation of tenders. With respect to the preparation of tenders, the instructions should list the documents which must be submitted with a tender (these should include all documents, duly executed, of which draft forms were provided to the tenderer (see para. 17, above)), and specify the language or languages to be used in completing these documents. They should also set forth any requirements of the purchaser as to how costs and the tender price are to be expressed. The instructions may, for example, specify the currency in which the costs and price are to be expressed, and may specify that portions of the price which are allocated to certain aspects of the construction must be shown separately. The instructions should indicate whether an enterprise may submit tenders with alternative terms and, if so, the item or items for which alternatives are acceptable (e.g. transportation arrangements, insurance schemes, or the design of less important equipment), and specify the number of copies of the tender documents to be submitted and the time within which or the date by which tenders must be submitted.

19. The instructions should also set forth the procedures for inspection of the site by enterprises, the method by which a prospective tenderer may seek clarification of the documents provided to him, and the period of time during which the tender must remain in effect. With respect to the last item, the purchaser should allow adequate time for the tenders to be evaluated and the successful tenderer to be selected and notified, for any discussions between the purchaser and the tenderer needed prior to the conclusion of the contract, and for the submission by the successful tenderer of the performance guarantee. The purchaser may consider a period of between 90 to 120 days after the deadline for submitting tenders to be appropriate. The purchaser might also reserve the right to extend this period, if necessary, by notifying all tenderers of the length of the extension. The instructions should provide that tenderers who agree to such an extension are required to extend their tender guarantees to cover the extended period, and that tenderers who do not so agree will be considered to have withdrawn their

tenders, but without forfeiting their tender guarantees. Tenderers should not be permitted to change the terms of their tenders during the period of extension.

20. The instructions should require that the tender be accompanied by a tender guarantee in a form and amount acceptable to the purchaser. The purchaser may wish to provide to prospective tenderers a draft form of tender guarantee which meets the requirements of the purchaser, as this will provide certainty that the terms which the purchaser requires will be contained in the guarantee submitted by the tenderer. The amount payable under a tender guarantee should be recoverable by the purchaser if the tenderer providing the guarantee withdraws his tender after the deadline for submitting tenders, or if his tender is selected by the purchaser and he fails to conclude a works contract with the purchaser in accordance with his tender or fails to provide a required performance guarantee. The guarantee should indicate whether the purchaser must prove that one of these events has occurred before he is entitled to recover the amount due, or whether a mere assertion by the purchaser that such an event has occurred is sufficient. The guarantee should also indicate whether the amount due is recoverable without proof of loss by the purchaser, or whether the purchaser must prove the loss sustained by him (see the chapter "Security for performance"). The amount of the tender guarantee should be high enough to constitute an adequate deterrence to the tenderer from withdrawing his tender after the deadline for submitting tenders, and to compensate the purchaser for any loss he may suffer from the failure of the tenderer to conclude a works contract in accordance with his tender or submit a performance guarantee (e.g. the costs of engaging in new tender procedures and the difference between the withdrawing or defaulting tenderer's price and a higher price in a tender selected by the purchaser in new tender procedures). Such amount may be set forth as a specific amount or as a percentage of the tender price. The draft form of tender guarantee should provide that it is to remain in effect during the period of time when the tender is to remain in effect. If a draft form of tender guarantee is not provided to prospective tenderers, the instructions should set forth the requirements of the purchaser regarding the tender guarantee. In addition to specifying the required amount of the guarantee, the conditions under which it is recoverable by the purchaser, and the period of time during which it is to remain in effect, the instructions should specify the currency in which the guarantee is to be furnished. They should also specify the acceptable type or types of tender guarantee. Possible types may include a standby letter of credit, a bank guarantee, or a guarantee issued by an insurance or bonding company. Where the guarantee may be issued by a financial institution, the purchaser may wish to specify the institutions acceptable to him (see, also, the chapter "Security for performance").

21. The instructions should set forth applicable procedures for dealing with discrepancies in the various documents provided by the purchaser to prospective tenderers and should specify whether and when tenders may be modified. The instructions should state that

tenders cannot be modified or withdrawn after the deadline for submitting tenders. However, inadvertent or insignificant errors in tenders might be permitted to be rectified in some cases (see, also, para. 30, below). In addition, the instructions should set forth the general criteria by which the purchaser will evaluate the tenders (e.g. the weight to be given to the tender price (see para. 31, below)). They may also specify that the purchaser reserves the right not to select any tender. They should indicate procedures according to which the tenders will be opened and tenderers will be notified of the outcome of the evaluation of tenders, and the procedure for concluding the contract.

22. Finally, the instructions should set forth any other requirements of the purchaser. For example, the purchaser may wish to set forth a requirement that a tenderer who has been pre-qualified should update the information given in his pre-qualification questionnaire, a requirement that costs associated with the preparation and submission of tenders are to be borne by the tenderer, a requirement that all documents submitted with the tender are to be typed or written in indelible ink, a requirement that all signatures must be those of persons who are authorized under certificates of authority submitted with the tender to sign the tender or are authorized to sign on behalf of the tenderer, and a requirement that all erasures to documents must be signed or initialled by the persons signing the documents. The instructions should specify that by submitting a tender a tenderer agrees to conform to and be bound by all the requirements, terms and conditions set forth in the instructions.

23. It is desirable for the contractual terms to be drafted by the purchaser and supplied to prospective tenderers with the other documents described above (see para. 17) and for the instructions to require that the tender be based upon such contractual terms. Unless this is done, it will be difficult for the purchaser to compare and evaluate tenders, as each tenderer may submit his tender on the basis of differing contractual terms. Under the tender approach, such terms are usually not the subject of negotiations between the parties (although the purchaser may allow certain details to be discussed); rather, in determining his tender price the tenderer will take into account such terms and the allocation of costs, risks and liabilities reflected therein. The various issues which should be addressed in the contractual terms, and the ways in which these issues may be treated, are discussed in part two of this Guide.

24. The draft form of tender should set forth the offer of the tenderer to construct the works in accordance with the contractual terms, technical specifications and drawings provided to the tenderer. It should also call upon the tenderer to set forth his offer as to the matters in respect of which the tenderer's offer is solicited (e.g. price, payment conditions). The draft form of tender should also expressly state that the tenderer undertakes to conform to and be bound by all terms and conditions set forth in the instructions to tenderers.

4. *Opening and evaluation of tenders*

(a) *Opening of tenders*

25. The most common method of opening tenders is public opening, i.e. opening in the presence of tenderers or their representatives. If the purchaser so wishes, even persons who have not tendered may be permitted to be present. Public tender opening may be required by financing institutions, as this tends to reduce abuses in the selection of the successful tenderer.

26. The instructions to tenderers may have required the submission of tenders under the two-envelope system. Under this system, tenderers submit two envelopes, one containing the technical elements of their tender, but without mention of a price, and the other containing the price. If the two-envelope system for the submission of tenders has been adopted, the envelopes containing the technical elements are first opened in private and the technical elements evaluated to determine whether they comply with the purchaser's requirements. Thereafter the envelopes containing the tender prices submitted by those tenderers who have submitted technical elements complying with the purchaser's requirements are opened at a public session, and these tenders are later evaluated in greater detail. This procedure may lead to a more objective evaluation of technical elements because these elements are evaluated without a consideration of the associated price.

27. The opening of tenders is sometimes conducted in private, without tenderers being present. Such a procedure may be justified by exceptional circumstances (e.g. when the works to be constructed is related to national security). Private opening of tenders may also result in a more realistic evaluation of tenders. However, this procedure may lead to abuses, and accordingly it is not permitted by many financing institutions. If this procedure is to be adopted, however, the confidence of the tenderers in the proceedings, and the participation in the opening of individuals of recognized integrity (auditors or senior civil servants).

(b) *Evaluation of tenders*

28. The purpose of tender evaluation is to compare the tenders with a view to identifying the tender which complies with the purchaser's requirements and is most acceptable to him, taking into account all relevant factors. The evaluation procedure, unlike the opening of tenders, should be conducted without the tenderers being present. The purchaser may seek any clarification needed to evaluate a tender during the evaluation period. The evaluation process usually takes place in certain stages: preliminary screening, detailed evaluation, discussions with the most acceptable tenderer, and post-qualification and selection of the successful tenderer.

(i) *Preliminary screening*

29. A preliminary screening should be used to determine whether the tender complies with the purchaser's requirements as to the tender and the documents which

should accompany the tender (see para. 18, above). This may involve checking the following items:

Whether the tender has been signed by an authorized representative of the tenderer;

Whether the tenderer has met any eligibility requirements, e.g. whether he is on the pre-qualified list if pre-qualification procedures were used, or whether he meets requirements laid down by the financing institution, if any;

Whether the tender substantially complies with the contractual terms and technical requirements set out in the invitation to tender and the instructions to tenderers;

Whether the full set of required documents has been submitted.

30. The documents may also be checked for arithmetical or clerical errors at the stage of screening. The process of screening may enable the purchaser to place the tenders in different categories. Certain tenders will contain substantial deviations from the requirements of the purchaser and need no longer be considered. Certain tenders may contain deviations which appear to be inadvertent (e.g. omission of required documents). In such cases, the purchaser may wish to contact the tenderer to inquire whether he wishes to rectify the deviation. Yet other tenders may contain minor deviations which have to be assessed in financial terms at the stage when a detailed evaluation is made of the tenders.

(ii) *Detailed evaluation*

31. The general criteria to be considered in the detailed evaluation of tenders would have been set forth in the instructions to tenderers (see para. 21, above). The tender with the lowest price need not necessarily be the most acceptable, although the tender price is one of the most important criteria to be considered. In the detailed evaluation, any deviations, qualifications or alternatives set forth by the tenderer must be evaluated in terms of their direct and indirect costs and benefits to the purchaser in order to arrive at the most acceptable tender. An important criterion would be the technical aspects of the tender (e.g. conformity with specifications and drawings supplied by the purchaser, and proposed methods of construction). The past record of the tenderer, and the nature of on-going projects undertaken by him, should also be carefully considered. Where margins of preference are applicable in the selection of tenderers, these margins should be calculated in relation to the tenderers eligible for the benefit of such margins. Depending on the nature of the contract, a further variety of criteria (e.g. extent of transfer of technology to the purchaser, nature of the skilled personnel allocated to the performance of the contract, extent to which work is to be sub-contracted) should be assessed.

5. *Discussions with most acceptable tenderer*

32. There will probably be items in the tender of the most acceptable tenderer, e.g. minor deviations from

the purchaser's design or certain contractual terms, which must be discussed and resolved to the satisfaction of the purchaser before a contract can be concluded (see para. 30, above).

6. *Post-qualification and selection of successful tenderer*

33. Once discussions are successfully concluded with the most acceptable tenderer, the purchaser must determine if this tenderer is capable of performing the contract. If a pre-qualification procedure has been used or a questionnaire as to his qualifications has been completed by the tenderer, the purchaser need only make certain that the tenderer's ability to perform has not been affected between the time of pre-qualification or the completion of the questionnaire and the time of the decision to select him. If these procedures have not been used, the purchaser may wish to require the tenderer to complete a questionnaire such as the one described in relation to pre-qualification (see para. 11, above).

34. The successful tenderer should be notified of his selection and required to furnish the performance guarantees. Immediately after the successful tenderer has concluded a contract and has furnished security for performance, the tender guarantees of unsuccessful tenderers should be returned.

C. *Negotiation*

35. Under this approach, the contractor contacts a certain number of enterprises which he judges to be capable of constructing the works, informs them of his requirements, and requests offers. Documents describing the scope and quality of the construction and containing the contractual terms required by the purchaser may be submitted to the enterprises. No formalities are prescribed for making or evaluating the offers or for negotiating the contract. In some cases, at the outset of the negotiations, the parties may wish to agree that certain types of information (e.g. technological processes) disclosed by a party during the course of the negotiations are to be kept confidential by the other party.

36. The purchaser should clearly define the extent of authority of the team negotiating on his behalf and communicate such extent to the contractors with whom negotiations are commenced. It may be useful to keep a record of the progress of the negotiations which should be authenticated on behalf of each party as the negotiation progresses.

D. *Conclusion of contract*

1. *Form of contract*

37. Whether the tendering approach or the negotiation approach has been adopted, the law governing the formation of the contract may require a works contract to be in the written form. Even if such law does not require the written form, the parties should reduce their agreement to writing in order to avoid disputes as to what terms were agreed upon. The contract should identify the written documents which constitute the contract and should provide that no other documents and no oral statements form part of the contract. The contract should also provide that it may be modified or terminated only by agreement in writing.

2. *Validity and entry into force of contract*

38. In negotiating and concluding the contract, the parties should take account of the legal rules governing the formation and validity of the contract. Some of these rules may have a mandatory character. Contractual obligations between the parties would usually arise as from the date of the conclusion of the contract. In some cases, however (e.g. where one party must obtain a licence without which performance of the contract is impossible), the parties may wish to agree that contractual obligations are to arise only as from the date when a specified condition is fulfilled, provided such condition is fulfilled within a period of time set forth in the contract. When the negotiation procedure is adopted, in order to identify clearly the point of time at which the contract is concluded, the purchaser may wish to stipulate at the commencement of negotiations that no contractual obligations between the parties are to arise until the parties have agreed in writing that a contract has been concluded between them.

C. Further work of the Commission in the area of international contracts for construction of industrial works: note by the secretariat (A/CN.9/268)^a

1. The Commission will have before it at this session the reports of the Working Group on the New International Economic Order on the work of its sixth and seventh sessions (A/CN.9/259 and A/CN.9/262). Considerable progress has been made by the Working Group in its work on the preparation of a draft Legal Guide on drawing up international contracts for the

construction of industrial works, and it is expected that the final instalment of the draft chapters of the Legal Guide will be considered at the eighth session of the Working Group in the first quarter of 1986. Thereafter, only the revision of the draft chapters by the secretariat, and the overall consideration of these revised chapters, will be necessary to complete the work. The secretariat has accordingly been giving consideration to enhancing the value of the Legal Guide by the preparation of annexes to the Legal Guide dealing with areas which

^aFor consideration by the Commission, see *Report*, chapter IV (part one, A, above).