Project Procurement

At the inception stage of a project, procurement options should be reviewed and a decision made as to the most appropriate option. This stage in the procurement of each project should include the determination of the appropriate procurement strategy, with decisions being reached on the following matters:

- the works to be executed under each contract (often called "contract packaging"); and, for each contract

- the extent of design to be provided to, or to be carried out by, the contractor, and

- lump-sum, measure-and-value, cost-plus or other basis for determining the final contract price.

For a large project, decisions on the number and scope of contracts may be critical to the eventual success of the project. Having a large number of contracts may give the Employer more control than under a single contract for the entire project, and may be more economic by maximising competitive pricing. However, these advantages may be offset by a greater extent of co-ordination risk borne by the Employer.

For each contract, the party responsible for the design will develop it during the detailed design stage. If the design is carried out by (or on behalf of) the Employer, he will have a greater control over the details. However, problems may on occasions arise from the division of responsibility between designer and constructor.

If the constructor (the Contractor) is responsible for the design, he will wish to develop it in his own interests, subject to any constraints in the Contract. The Employer will have less control over the design than he would have if he was responsible for providing it. Under Contractor-design, the contract price would typically have been tendered on a lump-sum basis, so any change in cost (increase or decrease) to the Contractor, resulting from design development, would not be passed on to the Employer.

Design by (or on behalf of) the Employer

Under CONS, design is the responsibility of the Employer, except to the extent that Contractor-design is specified in the Contract. The Specification must therefore clearly state which (if any) parts of the Works shall be designed by the Contractor, and should also specify the appropriate criteria with which these parts shall comply. If most of the Works are to be designed by the Contractor, CONS would usually be considered inappropriate.

CONS' Clause 12 sets out the measure-and-value basis for determining the contract price, providing a convenient mechanism for valuing the many variations typically instructed under Employer-design. CONS' GPPC includes example text for the alternative option of lump-sum pricing, but this arrangement typically necessitates completion of design before tenders are invited and may give rise to problems evaluating

variations. Alternatively, CONS may be used with Particular Conditions invoking a cost-plus basis for determining the contract price, for use when all cost risk is to be borne by the Employer (for urgent works or works of uncertain scope, for example).

Design by the Contractor (the constructor)

Under P&DB or EPCT, design is the responsibility of the Contractor. He will wish to economise, in terms of his costs, which may be at the expense of quality. Therefore, it is considered essential that the Employer has (or procures) expert technical services, in order to ensure that his requirements are elaborated in the tender documents and are achieved in practice. If expertise is unavailable, problems may arise, particularly in respect of the need for variations.

Under a contract for Contractor-design:

- variations should be instructed as varied requirements with which the Contractor's design must comply, and not as a varied design instructed by (or on behalf of) the Employer, and

- the costs and other consequences of variations should be agreed in advance, so as to minimise disputes.

In practice, these aspects can make Contractor-design appear somewhat inflexible. Contractor-design is typically less amenable to variations initiated by the Employer, compared with CONS' Employer-design where the designer is independent of the Contractor.

Although Contractor-design prevents the Employer from having a close involvement in the design process, it does enable him to have the benefits of (i) lump-sum pricing, (ii) the Contractor's undivided liability for the works (including design), and (iii) the potential savings (in cost and time) due to a degree of overlap of design and construction.

This overlap of design and construction may (or may not) lessen the total period between the commencement of the preparation of tender documents and the completion of construction, because the saving may be offset by the lack of continuity of the design processes during the pre-contract stages. Under CONS' Employer-design, design development should continue uninterrupted.

Procurement Decisions

As previously stated, procurement should commence with strategic decisions on contract packaging and, for each contract, on the allocation of design responsibility and on the basis for determining the contract price. It is only after these above matters have been considered and decisions reached, that a decision should be made on the appropriate General Conditions to be incorporated into the particular Contract. There remains a possibility that, in borderline cases, the selection of the appropriate Book at this stage may be provisional and may need to be reviewed subsequently. For example, if a contract was to require the Contractor to design two-thirds of the works, it might be difficult to decide whether to use CONS or P&DB. It might even be necessary to draft two alternative sets of Particular Conditions, one for CONS and the other for P&DB, and only then decide which set to adopt.

If the result of the above analysis is a decision to procure the works on the basis of Employer-design, CONS provides an internationally acceptable basis for the tender documents. CONS may be used for a wholly Employer-design contract, whether for a wholly civil engineering project or for the civil engineering part of a multi-contract project, although the latter type of project may give rise to significant co-ordination problems. CONS may be equally suitable for a multi-disciplinary contract, if most of the design is to be carried out by (or on behalf of) the Employer. CONS includes some of the provisions relating to Contractor-design, and other such provisions can readily be included in the Particular Conditions and/or the Specification.

If the result of the above analysis is a decision to procure the works on the basis of Contractor-design, either P&DB or EPCT may be used; whether for the procurement of individual items of plant, individual structures, and/or complete facilities including those under turnkey contracts. Turnkey contracts include most or all of the fixtures, fittings and equipment (f.f.e.) required for the provision of a fully-equipped-facility, ready for operation (at the "turn of the key"). It is possible to use either Book for a plant, design-build or turnkey contract. The particular features of the actual project may have a major effect on the choice of Book, and on the drafting of the Particular Conditions and the other tender documents. The choice of Book for Contractor-designed Works may depend upon the availability of (i) the more detailed data required for an EPCT contract, and/or (ii) the time necessary to acquire such data.

Tenderers Need Data to Assess Risks

Tenderers for a construction contract need to study hydrological and sub-surface data, to the extent that this data is relevant to the particular type of works, in order to plan and estimate the costs of the excavation and other works. Under CONS, this is the primary use of this data, which the Employer makes available under Sub-Clause 4.10.

Under a P&DB or EPCT contract, and also in the case of a CONS contract which includes a significant element of Contractor-design, tenderers will require additional data on hydrological, sub-surface and other conditions on the Site (again, to the extent that this data is relevant) in order to design and determine the details of the works for which costs are to be estimated. Tenderers for Contractor-design works require as much data as that required by the Employer's designer under CONS. They may require more data, because the Employer's designer would co-ordinate the pre-tender sub-surface investigations to suit his preferred location of each pier of a multi-span bridge, for example. In contrast, when the Employer arranges for pre-tender investigations in order to obtain the data needed by the tenderers' designers, he may find it difficult to anticipate their preferred locations.

Tenderers require considerable data for the preparation of tenders for an EPCT contract, under which the Contractor assumes much greater risks than under a CONS or P&DB contract. Since, for example, the risk of sub-surface conditions is allocated to the Contractor, each tenderer needs to assess how adverse the actual conditions may be, both in terms of working in these conditions and in terms of their effect on the design of the works. If the risk of sub-surface conditions is significant, taking account of the type of works, it may be in the Employer's interests for the contract to allocate this risk to the Employer, either by amending EPCT 4.12 or by using P&DB.

Similarly, if other EPCT-only risks are significant, the Employer should carefully consider the consequences of allocating them to the Contractor. FIDIC's publication of EPCT

does not constitute any indication of its suitability for a particular set of circumstances. P&DB's fairer allocation of risks may yield a better probability for success.

Conversely, less risk entails less need for pre-contract data. For example, under a contract for the supply of an item of plant, the supplier may not need data which has no effect on the item's design. He may need to have details of the environmental and other conditions in which the plant will be required to operate, but would not normally be interested in knowing the depth of bedrock around the site.

Conclusions

The above commentary indicates the importance of selecting the appropriate procurement strategy, and of then selecting the appropriate FIDIC Book, taking account of the need to ensure that tenderers are provided with the data necessary for tendering. Selection of the appropriate Book requires important decisions to be made on procurement strategy, and there are two Books for Contractor-design: P&DB and EPCT.

Although FIDIC cannot prevent EPCT being used in circumstances for which it is inappropriate, FIDIC considers that EPCT should not be used (and that P&DB may be preferable) in the following circumstances:

- If there is insufficient time, or insufficient information, for tenderers to scrutinise and check the Employer's Requirements or for them to carry out their designs, risk assessment studies and estimating. Tenderers need to take particular account of EPCT 4.12 (under which the Contractor is responsible for the consequences of encountering unforeseeable ground conditions) and EPCT 5.1 (under which the Contractor is responsible for certain aspects of the Employer's Requirements, such as the applicability of ISO standards). Therefore, tenderers need information on the matters related to such risks and they need time to assess it and to evaluate all risks.

- If construction will involve substantial work underground or work in other areas which tenderers cannot inspect. For these types of works, the risks of encountering unforeseen conditions may be so great that the lowest tender is the one submitted by the least knowledgeable tenderer or most reckless gambler, rather than the best tenderer.

- If the Employer intends to supervise closely or control the Contractor's work, or to review most of the construction drawings. With the greater extent of Contractor's risks, he needs to have greater freedom of action and less interference by the Employer.

- If the amount of each interim payment is to be determined by an official or other intermediary. EPCT does not provide for an "Engineer" to administer the Contract and determine the amount of each monthly (or other) interim payment. Therefore, payments should be pre-determined and defined in a Schedule of Payments.

Tender documents must be drafted with care, particularly in respect of quality, tests and performance criteria for Contractor-design contracts. If tender documents are deficient, the Employer may pay an exorbitant price for unacceptable works. He must therefore ensure that adequate resources are allocated to the skilled tasks of drafting the technical and commercial aspects of the tender documents, and of analysing the tenderers' proposals.

Recommended Procedures

The following diagrams illustrate FIDIC's recommended procedures for:

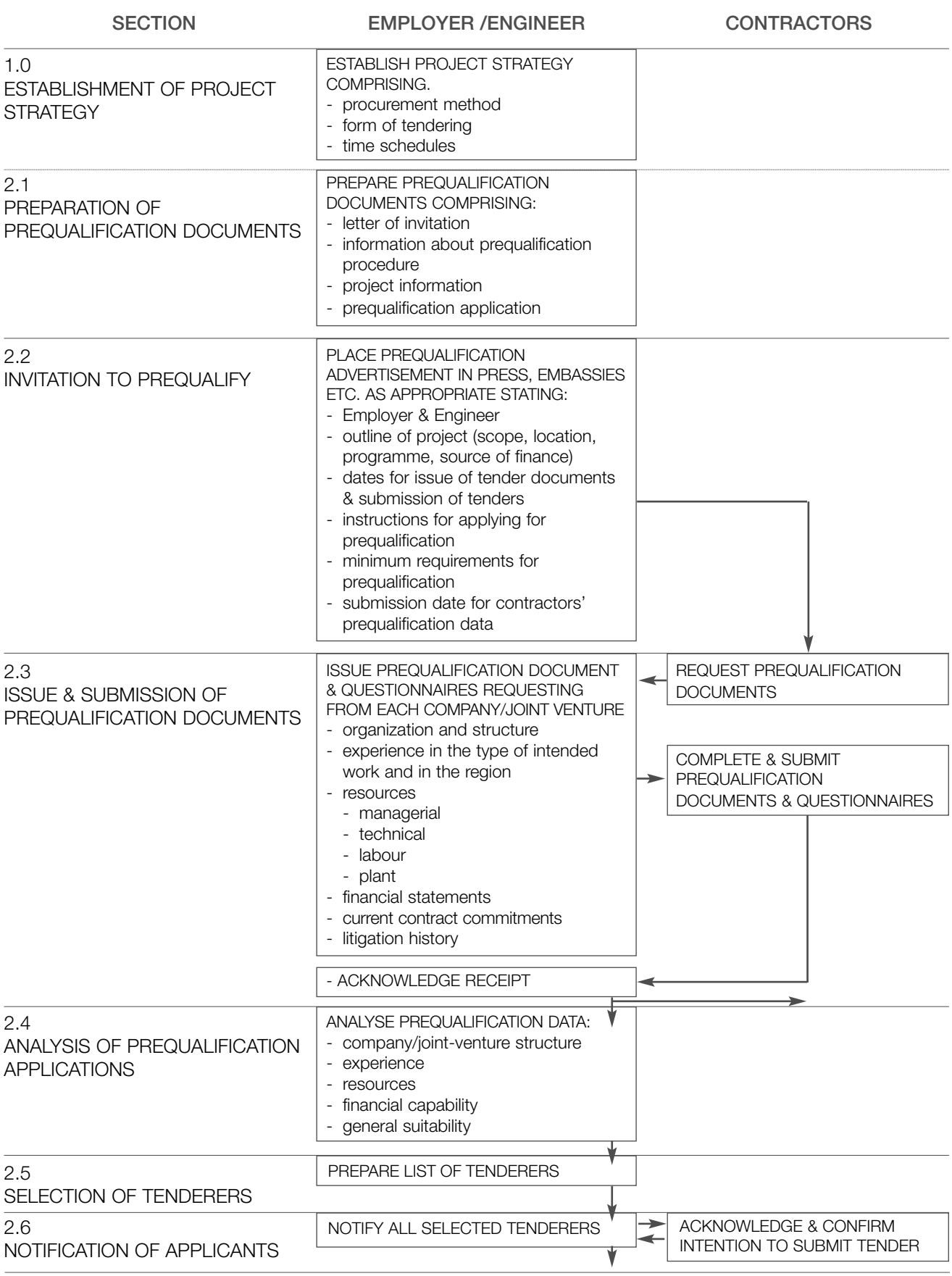
- prequalification, for which FIDIC has published "Standard prequalification forms for contractors",

- obtaining Tenders for a CONS Contract (taking account of its principles), and

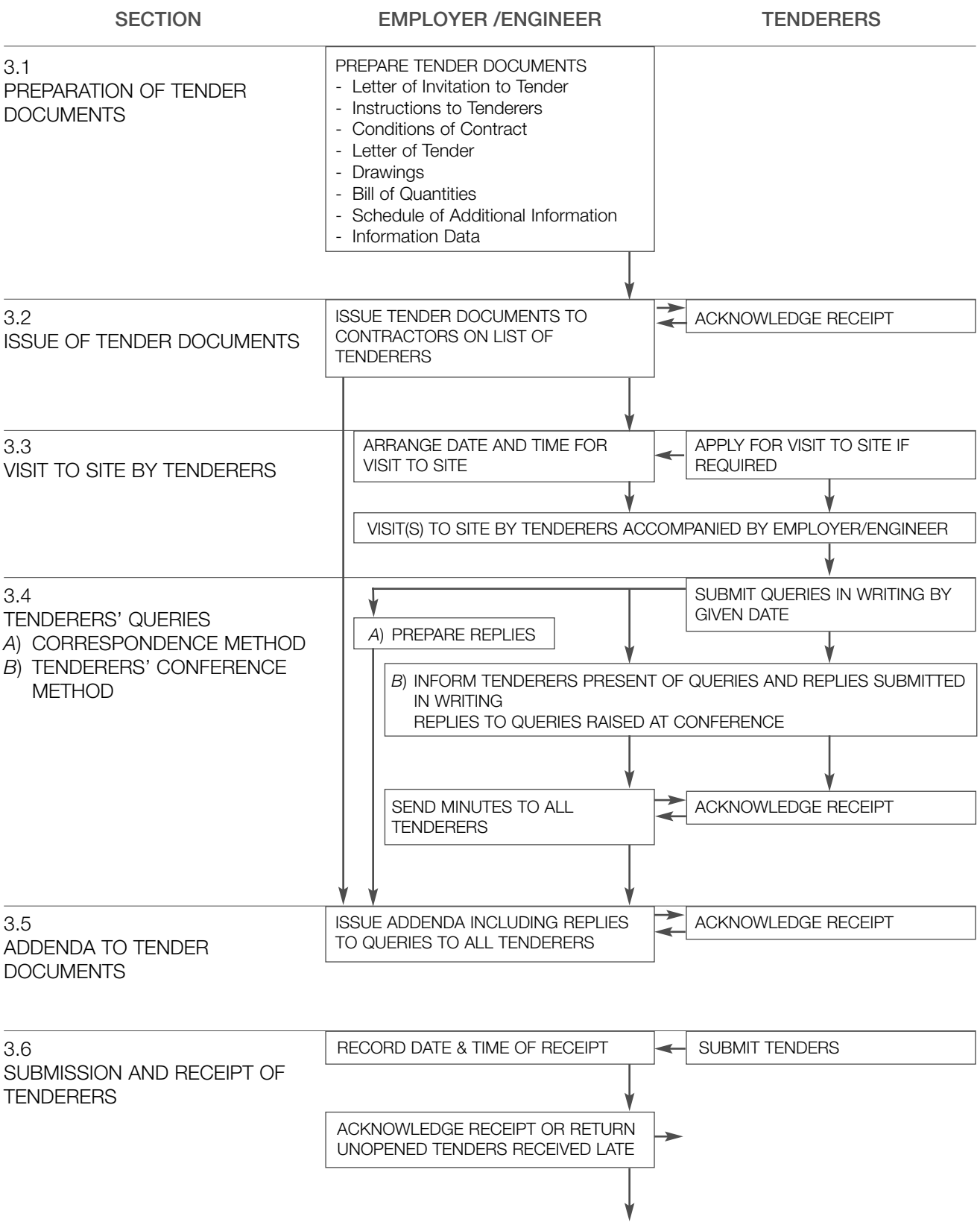
- opening and evaluating such Tenders, and entering into the Contract.

Under P&DB or EPCT, the documents issued for the purposes of obtaining Tenders have different titles and purposes, compared with those required for a CONS Contract, and tendering procedures should take account of the greater extent of the Contractor's obligations and liabilities under a P&DB or EPCT Contract.

Recommended Procedure for the Prequalification of Tenderers



Recommended Procedure for Obtaining Tenders under CONS



Recommended Procedure for Opening and Evaluating Tenders

The above procedures for obtaining, opening and evaluating tenders relate to a CONS contract. Under P&DB and EPCT, tenderers submit details of the design proposals, to the extent described in the Instructions to Tenderers, and the adjudication of the tenders includes examination and assessment of these proposals.

Procurement Documentation

Prequalification Documentation

Experience has shown that, particularly for contracts which include Contractor-design, prequalification of tenderers is particularly desirable. It enables the Employer to establish the competence of a known number of companies and joint ventures who are subsequently invited to tender. Restricting tendering to a pre-determined number encourages the better qualified entities to tender in the knowledge that they have a reasonable chance of success.

Procedures for the prequalification of prospective tenderers may be imposed by the applicable laws, or by the requirements of the financial institutions who will be providing funds for the project. In particular, they may not permit any limit on the number of prequalified tenderers.

Typically, the Employer initiates the prequalification stage of the project, by publishing advertisements which either (i) contain all the necessary information on the project and on how applicants should apply for prequalification, or (ii) describe how to obtain a document which contains all this prequalification information and which should include:

- information on the prequalification procedure, including qualification criteria and any relevant policies which the Employer may have (on joint ventures, on the intended number of prequalified tenderers, and/or on preference for local firms, for example);

- instructions on the language and content of each application for prequalification (completion of FIDIC's "Standard prequalification forms for contractors", for example) and on the time and place for its submission; and

- information on the contract (and on the project of which it forms part, if any), including the names of the Employer and the Engineer or Employer's Representative, location of site, description of works, anticipated time programme, contract law and language, form of contract (i.e., name of FIDIC's Book), source of finance, currencies of payment, and any unusual features or constraints.

Other information on the contract may also be included, such as the Employer's intentions regarding securities and price escalation provisions. However, the Employer may not have reached decisions on these matters before inviting applications for prequalification. Primarily, prospective applicants need sufficient information to assess their interest in submitting tenders. They do not need to assess various other matters which only become relevant when they receive all the tender documents.

When invited to tender, each tenderer may be able to discover the number (and, possibly, abilities) of the competing tenderers. If so, he may compare the benefits of being awarded the contract with his estimated tendering costs and chance of success. These costs may be substantial for Contractor-designed Works, particularly if the Employer requests tenderers to submit extensive details of their designs.

The Employer should therefore, in his own interests and unless he is not permitted to do so, limit both the number of prequalified tenderers and the extent of the details which they are required to submit with their tenders. The prequalification information should ideally indicate the number of firms and joint ventures which are expected to be prequalified. This number should be determined carefully, taking account of the requirements of any financial institution providing funds for the project, and of the work required for the preparation of a compliant tender. Whereas six to eight tenderers might be appropriate for an uncomplicated CONS contract, four or five might be preferable for Contractor-designed works, and three might suffice for complex turnkey works.

Having analysed the applications, the Employer should notify each applicant whether it has been prequalified to tender for the Contract. Notice should be given as soon as the Employer has reached his decision on the applications, and should not await the completion or issue of the tender documents. If issue of the tender documents seems likely to be delayed, the prequalified prospective tenderers should be notified accordingly, so that they can plan the future activities of their estimating teams. Tenders should not be invited until the Employer has obtained the necessary financing, or has advised prospective tenderers of the financial situation so that they are aware of the outstanding financing arrangements.

Tender Documentation

When tender documents have been prepared and financing arrangements have been finalised, the Employer should write to each tenderer and invite him to submit a Tender. An example form for this Letter of Invitation is proposed below, based upon the assumptions that (i) each such Invitation would be issued direct by the Employer, (ii) he has previously notified the recipient of his prequalification, and (iii) the tender documents will soon be issued on the Employer's behalf. Amended wording would be required (for example) if (i) the Invitation is itself issued on the Employer's behalf, (ii) it constitutes the notification of prequalification, and/or (iii) the Employer requires other arrangements for the delivery or purchase of the tender documents.

The example form for the Letter of Invitation is only a suggestion, and must be wholly reviewed and amended so as to take account of the Employer's requirements and all other relevant circumstances. It includes information which may not be available when the tender documents were prepared, and which the example forms of Instructions therefore refer to as being specified in the Invitation. The example form of Invitation avoids repeating information contained in the tender documents, in order to avoid inconsistencies.

The other documents issued to prospective tenderers will normally include the following:

(a) Instructions to Tenderers, including descriptions of the compliance criteria for tenders and of the procedures for submitting and evaluating them, which become irrelevant when the Employer accepts a Tender. Although (for convenience) the Instructions to Tenderers may be bound into the first volume of the Tender Documents, they should not form part of the final Contract, and should therefore not contain any text which remains relevant after award of the Contract. The Instructions specify the procedures to be followed until the Employer either enters into a Contract or advises tenderers that the Employer does not intend to do so. Such procedures include, for example, those for a joint site visit (if any) and for the preparation, submission, opening and evaluation of Tenders. The Instructions should define what will comprise a responsive Tender, requirements which are directed to the tenderers and are superseded by the

award of the Contract. The Instructions to Tenderers could be based upon FIDIC's example form in this Guide. This example form is only a suggestion, and must be wholly reviewed and amended so as to take account of the Employer's requirements and all other relevant circumstances.

(b) Letter of Tender, which should be based upon the Example Form at the end of each Book. For CONS and P&DB, an Appendix to Tender, which should take account of the Book's GPPC and this Guide.

(c) For CONS and P&DB: Schedules (for CONS, the Bill of Quantities may be the only Schedule).

(d) Conditions of Contract: which should comprise the wording proposed in the Introduction of the appropriate GPPC, which incorporates (by reference) the chosen Book's General Conditions, and Particular Conditions. When writing the Particular Conditions for each contract, users should review the GPPC (and, for CONS or P&DB, the Example Form of Appendix to Tender) and then review the General Conditions and this Guide in order to assess whether each provision is applicable for the particular contract. Project financial institution(s) may have particular preferences and/or impose mandatory requirements. Where General Conditions need to be changed, the amendments and additions must be contained in Particular Conditions, not in amended and/or retyped General Conditions, so that tenderers can rapidly identify any changes and assess their effects. The wording proposed in the Introduction of each GPPC reads:

The Conditions of Contract comprise the "General Conditions", which form part of the "Conditions of Contract for …" … published by the Fédération Internationale des Ingénieurs-Conseils (FIDIC), and the following "Particular Conditions", which include amendments and additions to such General Conditions.

(e) For CONS: Specification; and Drawings. For P&DB and EPCT: Employer's Requirements, which may include some drawings.

(f) Information and data on hydrological and sub-surface conditions at the Site, studies on environmental impact, and reports on any other investigations initiated by the Employer. These would normally not form part of the Contract, but must be provided to tenderers in accordance with Sub-Clause 4.10.

The documents mentioned in (b) to (e) will become parts of the Contract: see the comments in this Guide on Sub-Clause 1.1.1.

When preparing the documents mentioned in (d) and (e), the comments in the appropriate GPPC and in this Guide should be taken into account. As far as practicable, the Contractor's obligations should be stated in clear unambiguous terms, and not in such a way that the application of opinion or judgement is necessary. Vague phrases, which tenderers would find difficult to understand to the precision necessary for pricing (for example, specifying the use of "up-to-date technology"), should be avoided. If these subjective phrases are used, Tenders may include detailed clarifications, which tenderers will wish to ensure will be binding.

For Contractor-design, the Employer may wish to encourage the tenderer to propose solutions complying with requirements which the Employer can only describe in subjective terms. If the Employer wishes to include subjective requirements, they should only be stated in the Instructions to Tenderers. Each tenderer can then propose solutions

as part of his Tender. It is then these solutions in the Tender which (unlike the subjective requirement in the Instructions to Tenderers) will form part of the Contract.

Tendering Procedure

In order to manage tendering procedures effectively, it may be advisable for one person to be appointed (by the Employer, Engineer or Employer's Representative) as tendering co-ordinator, responsible for:

- despatching the tender documents to each prospective tenderer;

- ensuring that each tenderer has formally acknowledged receipt of the tender documents;

- managing the site inspection, having ensured that tenderers have received details of the arrangements: the tendering co-ordinator should prepare an agenda, appropriate supplementary briefing information for the visitors, and a record of the visit;

- receiving and responding to queries from prospective tenderers, as follows:

  (i) a question which could have been asked by any tenderer (for example, seeking clarification of any aspect of the tender documents or of any arrangements on site, a clarification which will apply whoever is awarded the contract) should be answered as described in the Instructions, typically by the tendering co-ordinator issuing Lists of Tenderers' Questions (with the Employer's answers) to all tenderers;

  (ii) a question which relates solely to the tenderer's particular proposals for carrying out the contract (for example, regarding the acceptability in principle of a possible alternative design) should be regarded as confidential and answered to the enquiring tenderer only, the other tenderers not being advised;

  (iii) if amendments need to be made to the Tender Documents, the tendering co-ordinator should issue to prospective tenderers an Addendum to Tender Documents, and ensure that each tenderer has formally acknowledged receipt.

Unsuccessful tenderers will retain the copyright of their designs. The Employer must return their designs, without copies being retained and without releasing details to the successful tenderer, the Contractor.