SELECTION OF CONTRACTORS

Proposed Alternative Mechanisms to Award Construction Works Contracts

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PREFACE

The public perception of the international consulting engineering community is heavily influenced by the performance of the world's built infrastructure. Critical to achieving success is the method used to select and award construction contracts.

The current Low Bid method that prevails through most of the world, is to select the construction contractor with the lowest price, provided that the bid complies with basic documentary and statutory requirements. FIDIC has conducted a world-wide survey of engineering associations and multilateral development banks, and concluded that this Low Bid method is not providing client/owners with ultimate best value. As a result, there is a growing recognition that alternative selection processes which include qualifications criteria are required.

Under the Low Bid method, the client/owner runs the significant risk of selecting a construction contractor that has either accidentally or deliberately submitted an unrealistically low price. Client/owners cannot expect construction contractors to adhere to such a price while completing projects in accordance with the plans and specifications and making sufficient profit to remain in business. This often results in compromised quality, excessive disputes, claims, delays, litigation, increased costs and sometimes defaults. The consulting engineers responsible for certifying that the construction work has been completed to a satisfactory standard finds themselves in an adversarial relationship with the construction contractor, resulting in substantial increased effort and costs to the consulting engineer, for which owner/clients are often unwilling to pay.

To address this challenge, FIDIC has developed this Best Practice Guideline entitled "Alternative Mechanisms to Award Construction Works Contracts". This document describes a range of best practices that clients can consider implementing according to their individual circumstances and national regulations, including; Prequalification and Shortlisting, Lowest Workable Cost Approach, Cost and Quality Approach, and Quality Approach. The Guideline concludes with a brief analysis of the Pros and Cons of the various alternatives.

In recent years, progressive owner/clients throughout the world have increasingly adopted methodologies for selecting engineering consultants that de-emphasize price, and focus on quality and qualifications. Owner/clients have started to appreciate the benefits of higher quality project life-cycle engineering, resulting in lower construction, operations and maintenance costs. Elements of this philosophy are being integrated into Design-Build and Public-Private-Partnership delivery models that encourage consulting engineers and construction contractors to collaborate to provide best-value solutions to owner/clients. FIDIC hopes that the introduction of this Best Practice Guideline "Alternative Mechanisms to Award Construction Works Contracts" will also contribute to the process of offering better outcomes to owner/clients.

This Best Practice Guideline has been prepared by an international group of FIDIC volunteers under the leadership of Mr. Kiran Kapila, from India. To the date of publication there has been some valuable involvement from Mr. Phil Long from the Canadian construction industry.

Other members of the Task Force are:

Mr. Andrew Read from New Zealand, Mr. Mark Steiner from America, Mr. Chris Newcomb from Canada, Ms. Fatma Colasan from Turkey, Mr. Shahram Sandiani from Iran.

Apart from the Task Force Members, the document has had inputs from Mr. Mathias Fabich, representative of European International Contractors (EIC), and Mr. Greesh Sharma, Principal Procurement, Project Procurement, New Development Bank.

It is hoped that this guideline will be a living document, and as construction associations and owner/clients around the world become more familiar with it, the guideline will be amended and improved based upon their input.

INTRODUCTION

The international consulting engineering community is publicly judged by the performance of the world's physical or built infrastructure. While responsible for the design of this infrastructure, the actual construction work is usually performed by contractors. Successful construction is dependent on implementation of the engineers' designs into the completed project. Critical to achieving this success is the method used to select and award work to construction contractors. The purpose of this paper is to identify alternative best practice contractor selection methodologies that can be applied world-wide, depending on the complexity of the project, and the procurement and technical sophistication and capacity of the procuring entity.

FIDIC has just completed a survey of its world-wide member associations and multilateral development banks (MDBs), to better understand the current contracting practices used and how successful they are. The result uncovered a need for change.

Some of the notable survey results are:

1. Most countries have separate procurement laws for construction work.
2. Advertising in public sources is commonly done.
3. Almost all require some sort of qualifications and technical proposals.
4. For countries, slight majorities prequalify/short list firms and less than one-half require technical proposals and don't consider sustainability, long-term performance and operational cost in decisions.
5. For MDBs, short listing based on qualifications and evaluation of technical proposals is required.
6. Nearly 40% of countries award contracts based on quality and price or on average price method, nearly 40% of countries award contracts on least cost and about 20% apply average rule/alternative selection methods.
7. It was almost unanimously agreed that low bids are a problem, causing overruns, scheduling problems, disputes, and contract terminations and do not serve owners, contractors, or the public.
8. All agreed that low bids have a negative effect on relationships.
9. Over 75% stated that low bids increase engineering costs.
10. The majority (61%) want FIDIC to produce a Best Practice Guideline for awarding work to contractors, with another 31% preferring FIDIC generate a policy paper.

Under the low bid method, the construction firm submitting the lowest bid receives the right to the construction contract. It's perceived advantage is that it forces contractors to continuously try to lower costs by adopting cost-saving technological and managerial innovations. These savings are then passed to the owner through the competitive process. An owner runs a significant risk of selecting a contractor that has either accidentally or deliberately submitted an unrealistically low price. A contractor cannot adhere to such a price and at the same time expect to complete the project according to plans and specifications, and also make a reasonable profit. This may lead to the contractor generating excessive claims and disputes during construction which lead to litigation, schedule delays, compromises in quality, increased costs, and sometimes defaults.

Attempts by owners to mitigate artificially low bids and recommended alternative contractor selection approaches have included:

1. Prequalification and short listing, based on the well-defined criteria, in order to limit the number of bidders and thereby the pressure for a contractor to submit unrealistically low bids or not bid at all.
2. Using a realistic approach to find a reasonable bid (suitable to the local situations & environment) that should reflect reality and not misunderstanding, errors, or desperation.
3. Requiring and evaluating project specific Technical Proposals, along with Cost Proposals, in order to understand an offeror's approach and select the "best value" offer.

PREQUALIFICATION AND SHORTLISTING OF CONTRACTORS

Limiting the number of bidders increases the probability of any one bidder being able to win the work. While this encourages the firms short listed to submit bids, it does not eliminate the potential for mistakes or for desperate bidders to submit artificially low bids. The shortlisting criteria given below are meant to determine the most appropriate bidders from amongst the prospective bidders.

For effective prequalification and shortlisting process, a well-structured Expression of Interest (EoI) is to be widely published. The criteria for pre-qualification, and for evaluating the submissions have to be clearly spelled out in the EoI. Shortlisting should limit the number of firms to those with distinctly superior qualifications.

The shortlisting criteria should generally include the following:

1. Company details, history and commitments (focused on the last 5 years, but allowing older relevant examples)

- 1.1 Details of work performed as Prime Contractor.
- 1.2 Details of Projects Completed (similar nature and in same geographical area).
- 1.3 Details of conformance to environmental codes and sustainability, labor safety, employee rights, security standards, and other governmental or third party requirements.
- 1.4 Details of the current projects of similar nature under execution.

2. Plant & equipment, personnel and sub-contractors

- 2.1 Major items of Contractor's equipment proposed for carrying out the Works.
- 2.2 Qualifications and experience of key personnel proposed for administration and execution of the Contract.
- 2.3 Availability of equipment and personnel to perform the Works, considering the extent and scheduling of current projects being performed or recently awarded.

3. Financial details and legal status

- 3.1 Financial references of the Offerors main Bank.
- 3.2 Current financial details (attach financial statements & profit/loss statements for the previous 3 years).

4. Reference checks from the clients of the completed projects to know the Contractors performance including any litigation history.

RECOMMENDED CONTRACTOR SELECTION APPROACH

Once the Contractors are shortlisted/prequalified on the basis of a pre-determined criteria as discussed above, it is assumed that the shortlisted Contractors are qualified enough to execute the projects. While many Owners are able to estimate approximate construction cost, often Contractor proposals vary considerably from that estimate, due to different understanding, approaches, means, methods, and sequencing of work. Contractor selection requires varying approaches to deal with valuing the proposals presented. The possible approaches of selection of Contractor could be grouped under three main broad criteria with sub-groupings under each approach:

- Lowest Workable Cost Approach.
  - Selection based on Average Bid approach,
  - Selection based on the Contract price closest to the average bid price after elimination of abnormally low & high bidders
  - Selection based on Lowest Reasonable Cost
- Cost and Quality Approach (weightage of technical and cost score applied).
  - Selection Based on Technical and Cost Scores
  - Selection Based on Best Value Approach
- Quality Approach (selection based on highest technical score).
  - Qualifications Based Selection (QBS) method
  - Selection Based on the Highest Technical/ Performance Score Established on Owner's Budget

A. Lowest Workable Cost Approach (this approach is to identify an appropriate bidder with reasonable cost):

1. **Selection based on Average Bid approach:** This could be as simple as using the 'average bid', arithmetic average approach. The process is to calculate the arithmetic average bid price of the bids and award the contract to a bidder whose bid price is within 10% of the average bid price, and on the lower side of the average.

   For example, if the bid prices are 82,250, 84,650, 86,250, 88,950 and 90,150 respectively, then the average bid price is 86,450. The award goes to the bidder whose bid price is 82,250, as this price is within 10% of the average bid price.

2. **Selection based on the Contract price closest to the average bid price after elimination of abnormally low & high bidders:** Once the bids are opened, the financial bids of the technically qualified bidders are compared. The bidders whose bid prices are beyond the +/- 10% than the average bid price are rejected. The lowest of the remaining bids is considered for award. See example as below:

Firm	Bid price	Average bid price	Range of +/-10%	Rejection	Rank
A	100,000	99,666	89,699 – 109,632		03
B	110,000			Beyond range	
C	**90,000**				**01**
D	85,000			Beyond range	
E	115,000			Beyond range	
F	98,000				02

This selection process would be ideal for non-complex projects and procuring entities with minimal procurement and technical sophistication and capacity. But the process of above evaluation and comparison of bids has to be clearly specified in the bidding documents in the Bid Data Sheet (BDS) (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique.

3. **Selection based on Lowest Reasonable Cost**

   For non-complex projects and procuring entities with minimal procurement and technical sophistication and capacity, this two-step approach to the procurement of a construction contractor retains the benefits of prequalification and shortlisting. The first step is to solicit offerors to provide qualifications to do the work based on the type of project, location, schedule, and other criteria/factors that allow the potential offerors to determine if they can do the work and are likely to win the contract. The offerors submit relatively inexpensive, but responsive qualifications submittals and back up information, including information on example projects and appropriate contacts, to verify performance.

   Based upon the qualifications packages received, the owner identifies the offerors that have the capabilities, resources, experience, reputation, local knowledge, and other attributes that should lead to a successful project completion. If the number of qualified offerors is too large to encourage competitors to remain engaged in the procurement (low probability of winning), the owner ranks the qualified offerors based on pre-established scoring of the criteria. If there is a natural break in the scoring of the top 3-5 offerors, these become the short list. If the natural break in scores is higher, the list can be expanded. Minimizing the number of offerors avoids unnecessarily burdening offerors with proposal costs that probably will not result in winning the work and controlling the owner's internal procurement process costs.

   The second step is to request cost proposals for the specific project from the short listed offerors. The cost proposals are analysed to identify artificially low or high bids and then an offeror is selected based on the lowest cost or the closest to the average cost (as discussed earlier in this paper) of the proposals.

B. Cost and Quality Approach (weightage of technical and cost score applied):

1. **Selection Based on Technical and Cost Scores** - For more complex projects and more sophisticated procuring entities, a methodology that balances technical capabilities, project approach, and proposed cost of the offerors is sought. It is to request technical and cost proposals for the specific project from the short listed bidders. Included in the request for proposals would be a preliminary scope of services (terms of reference) and the evaluation criteria and scoring for the technical and cost proposals.

   The performance requirements and other fixed portions of the scope of services should be identified, with innovation and changes to the scope encouraged. The contents of the Technical Proposal should address the offeror's approach to meeting all of the challenges and requirements of the project. The performance requirements shall be considered while ranking the bids and shall include any specialized input of resources to complete the project, along with lesser cost and time, proposed risk management and mitigation plan, protection of social and environmental standards, safety standards, adoption of environment friendly construction techniques, etc.

   The Technical Proposals are then evaluated and scored based on pre-established criteria. A table of scores is established and, based on natural divisions in score totals, the procuring entity can retain all offerors or further limit the selection to those offerors over a certain achieved score. Once the technical scores are established, the Cost Proposals of the remaining offerors are evaluated and scored. The procuring entity then decides which offeror provides the best combination of capabilities, approach, and cost. Often a weighting of technical and cost scores is applied. To truly value the technical aspects of projects the weighting of the technical score should be at least 80% of the total score. In the situation, where a high technical weightage is not required (in case of less complex projects), the Employer may decide to lower the technical weightage.

   The selection criteria for technical and cost scores shall be clearly specified in the bidding documents in the BDS (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique being used.

2. **Selection Based on Best Value Approach** - The Best Value Bidder is selected after giving due weight to the four factors (price, project capability, risk assessment plan, and value added plan). The Bidders document shall include these four factors.

   The final selection modality is similar to quality and cost value approach. The good thing in this approach is that the best two or three bidders are interviewed before the final ranking is prepared. The quality/price weighting can vary, with at least 80/20 recommended. The recommended weightage of Interviews is 30%, Project capability 15%, Risk Assessment Plan 20% and Added Value Plan 15%.

C. Selection based on Quality Approach (selection based on highest technical score)

1. **QBS method**, as described in the Associated General Contractors of America Qualifications Based Selection of Contractors publication, dated August 2009: Here QBS creates a focus on quality and value only, not price. The most qualified vendor is selected on the basis of demonstrated competence, project approach, and ability to perform only. Criteria, like experience and past performance of the firm and the key individuals, capacity, financial strength, management plan, safety plan, quality assurance plans, are considered while ranking the bids/ proposals.

   The agency head/procurement head shall negotiate final scope and cost with the highest qualified firm at a compensation which the agency head determines is fair and reasonable.

2. **Selection Based on the Highest Technical/ Performance Score Established on Owner's Budget** - For procuring entities with full technical and procurement capabilities and capacity, wishing to achieve the most project performance within an established budget, an alternative best practice is offered here. It is to request technical proposals, based on the provided scope of services and project budget (cost and schedule). In addition to the offeror's approach to accomplishing the project, the offeror is asked to identify what scope and performance requirements can be completed within the budget identified by the owner, and what cannot be done and should be deferred. If all scope and performance requirements can be completed within budgeted cost and schedule restraints, the offeror should identify proposed additional enhancements or improvements that can be obtained without adding cost or time. The owner should identify whether cost or schedule is dominant in their decision making and if the offeror can adjust either to better the project value delivered.

3. **Selection based on cost cutting innovative construction approach/methods** - Construction contractors know when they are proposing an approach or methodology for construction that is truly innovative and will result in a significant cost advantage. Procuring entities need to encourage this

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thinking and accommodate resulting proposals. To do so requires:

a. Encouraging and providing an opportunity for the offeror to identify an innovative approach and explain why it results in what may appear to be a low bid.

b. Protecting the innovation from competitors.

c. Accommodating the impact of innovation and low cost in the selection process.

To be able to achieve this requires procuring entities to be able to understand and evaluate both the innovation, risks to project success, and resulting cost advantage of the construction approach being offered. This may require the hiring of a knowledgeable consultant to evaluate the proposal, if the capability does not already exist in-house. This needs to be understood and accepted prior to soliciting cost and technical proposals from potential offerors. Once established, solicitations need to specifically require offerors to include identification of significant cost cutting innovations included in their proposals, how they impact on bids, and if they represent proprietary information that needs to be protected by the procuring entity. As an alternative, the procuring entity may require offerors who believe they are presenting a truly innovative approach to separately propose without the innovation, to better understand how the innovation impacts final costs, schedule, and potential risks to the project.

The procurement methodology involved in facilitating accommodation of innovative approaches needs to be identified to potential offerors, including how proprietary information will be protected. If an acceptable innovative approach, from a qualified offeror, provides significant cost advantage to the procuring entity, the methodology should allow for direct selection of that offeror and the submitted proposal.

Proper due diligence must be ensured to evaluate proposals involving cost cutting innovative construction approach.

PROS AND CONS OF ALTERNATIVES

While the alternatives identified basically combine the best attributes of the mitigating approaches being explored by many owners, they present certain benefits and challenges to the owner, and therefore to FIDIC, in developing a best practice. The benefits include:

1. Ascertaining the best value to the Owner.
2. Avoiding damaging bids which are too low.
3. Nurturing more and better competition.
4. Encouraging innovation by offerors.
5. Arriving at more accurate construction budgets and schedules.
6. Providing standardization for the construction sector.
7. Eliminating inadequate or substandard construction firms.
8. Educating both Owners and Contractors on procurement considerations that lead to successful projects.

The challenges include:

1. Overcoming the allure of the simplicity of selecting the lowest bidder.
2. Explaining and educating owners on the positive aspects of the alternative methods.
3. Developing or providing the necessary skills for owners to use the alternatives.
4. Convincing the government, public, and media that low price is rarely the best approach for physical infrastructure projects.
5. Getting the construction contractors to accept new award methodology. The bidding document has to be very clear on the proposed method of evaluation and selection criteria, and specified stipulations must be there in the bidding documents (under relevant chapters) so that the prospective bidders are well aware of the evaluation technique.

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