

Contractor Selection Method for Construction Work and its Effect in Nepal

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Abstract:- The construction industries are one of the major parts that give important components for the improvement of on economy. The construction industries are the scheme through which a general public achieves its objective of urban and country development project. Construction Industry has the greatest challenges to complete the work on Time in Nepal now. There are several causes behind these days, which thus influences the project implementation at massive in the general world, including in Nepal. This study expected to notice and break down the one reason for delays in construction work in Nepal. The procedure of the procurement of works and selection method of construction contractor is also one of the causes of delay construction work in Nepal. In Nepal, Constructor selection is decided according to the lowest financial bidding system among the pre-qualified contractor. It is called low bid method. From this method, we will get financially benefit at starting time but we will get more difficult later to complete the project on time. Some country is precise average bid method. The contractor whose bid price is nearest to the average of all bidders is selected for construction of works. Some Country is followed by multi-criteria evaluation method. In this method, Contractor is selected according to some of the total weightiness from the Technical proposal and financial proposal. Technical and Financial proposal are evaluated in separate and combine the mark together to find out the highest scoring contractor. To eliminate the drawback of low bid system in Nepal, I have suggested using the Multi-criteria evaluation system after modified according to our condition in Nepal.

Keywords:- Construction, Contractor, Bid, Nepal, Procurement.

I. INTRODUCTION

➤ Background

Contractor selection procedure & decision making criteria are the most important tasks for clients & management group. The contractor is one of the major cause to complete the work on time with good quality of works. To make a decision for selection the contractor depends on public procurement of rules & procedure our country. Therefore public procurement rule should be practical, competitive & qualitative.

Careful analysis and selection of construction contractors, including bid participation, bid evaluation, and final selection are important management responsibilities news for attaining successful results.

Construction contractor selection criteria are governed by public procurement rule, criteria are governed by clients & management team. Therefore to select the good contractor for construction works management team should continue procedure extremely. In our country Nepal, Government has issued the public procurement rules to select the contractor. According to this rules, they are giving the most priority to lowest bidder among the pre-qualified bidder. This lowest bid system sometimes produces the huge problems in construction industries to complete works on Time. Therefore I explained the current and others alternative method to select the contractor to avoid the delay of works.

II. STATEMENT OF PROBLEMS

Current practice in the word, related to a selection of the contractor for construction work, there are applying different method. Among those methods, the low bid selection method is the one of selection procedure in our Country. This method is currently using in Nepal. Sometime it will be difficult to find out the capable contractor using this method. If the appropriate contract is not selected according to nature of the works, construction work will be delay and cost overrun. Time schedule delay & cost overrun bad effect all project. Quality of the work will be decrease & dispute and arbitration will be created between the client & contractor. Delay of works will make the bad effect on the environment & daily life of the people. It will decrease the economic growth of the country also.

III. METHODOLOGY

This article is prepared to review the literature, technical reports and case study of two building projects. Two building which is under construction at Kirtipur, Kathmandu Nepal located same geographical area. The contractor was selected by some procurement process for both buildings. Two different contracts were selected for the building. During construction period how to affect the procurement process and bidding price to complete the project on time was confirmed with two building each other.

The different examination has been attempted by an expert with respect issue of contractor selection for doing the construction project.

Ming-sum (construction information quarterly-volume-10-issue 4) is explaining the construction tender evaluation practice in China. Santosh Kumar Shrestha (journal of IOE 0-10, no.1) mention the standard practice to select the contractor in Nepal and others country. Jeffrey s. Russell (Iowa state university, Ames Iowa, project management journal 22(41-31-40) explain the selection criteria of contractor and different model of methodology to find out the capable contractor.

➤ *Selection Method Of Contractor*

There are many kinds of the method adopted to select the contractor for works. The different country they have the different procedure to quality and selected the contractor. Nepal country also has own method to select the contractor for works. Nepal also has own procedure to qualify and select the contractor. In public construction works, there are many kinds of practice to qualify and decision making procedure. Some best practice and Current practice in Nepal and others country are described below.

Following is the Diagram for lowest evaluated price process:

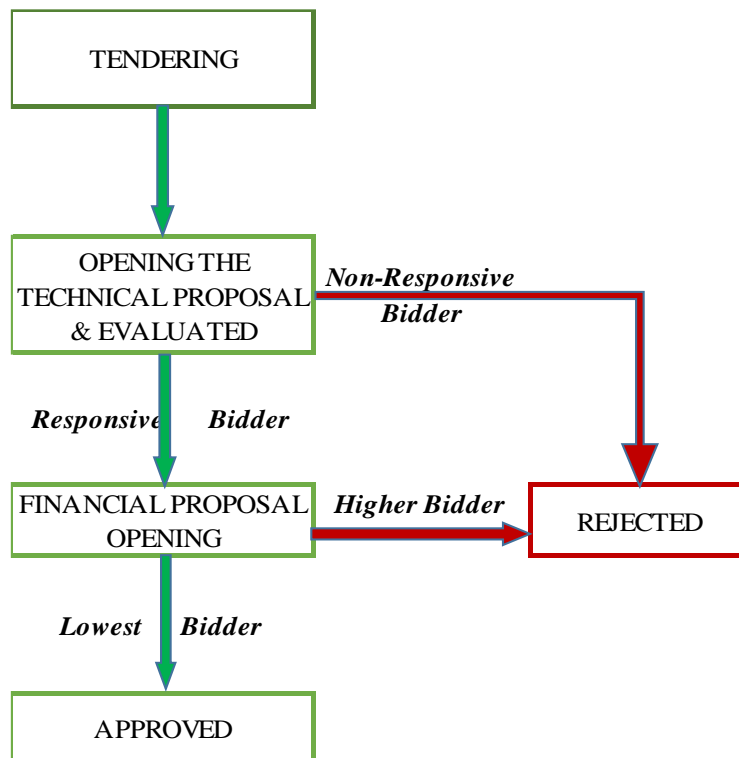


Fig 1

Lowest bid price evaluation method has some benefit but has more drawbacks. In This method, public get financially benefit in initial phase because of saving money by more financially competitive. But later in middle and last of the project, client lose the money due to the delay of work by the contractor because of the financially low bid but materials cost is high. This has a negative effect on both

➤ *Lowest Bid Price Evaluation Method*

This method is mostly used in public procurement process for Construction works in Nepal. Due to client’s interest in encouraging competition and saving money, this method is mostly used.

In this procedure first selected of capable contractor according to pre-qualifying criteria. Qualifying Criteria is fixed according to Public Procurement Act, 2063, Nepal and qualifying criteria is approved by the higher authority. After approved the bidding documents with qualifying criteria, bidding notice is published in the national newspaper to submit the technical & financial proposed by the contractor. Generally, submission time duration is given 30 days. Bidders have to submit the technical & financial proposal in a separated sealed envelope with sealing one single envelope. A first technical proposal has opened & evaluated. The bidder who has submitted the documents according to qualifying criteria are the responsive bidder and selected for further process. The financial proposal is opened for the only selected bidder. The comparative chart has made among the selected bidder who is a responsive bidder. According to comparative chart, which bidder had submitted the lowest financial price selected.

qualities and duration of the project. The contractor has lingered the construction work & failure in meeting its standards of Quality and sometimes unsuccessful whole the project. During the Construction, a period contractor will try to use cheapest materials and labors which will affect the Quality of works.

❖ *Case Study Example:*

This study is carried out on two different public building located at Kirtipur, Nepal. Both buildings are at same compound premises and both are under construction with two different contractors. Foundation of the building has same mat foundation building. Total floor area and total

estimate cost are different for both buildings. Name of the one building is TRC and other TVC contractor was selected by low-cost bidding method for both buildings. Two different contractors are awarded the work according to their bidding cost for both building construction works.

Details of both project data & progress report are given in following chart sheet.

Name of Project	1. TVC Building	2. TRC Building
Estimate cost Amount in Rs.	206,395,000.00	104,706,000.00
Contractor bidding Amount in Rs.	149,548,000.00	104,272,000.00
Different Amount	-56,847,000.00	-434,000.00
Different Amount in %	-27.54	-0.41
Name of the Contractor	A	B
Total no. of the floor of Building	2.00	2.00
Total Project time duration	24.00	18.00
Work Progress in % (According to Financially and Physically progress report)		
After 12 months	25%	67%
After 18 months	35%	100%

Table 1

Contractor A was granted the contract to construct the building TVC because of his lowest bidding cost. His bidding cost was 27.5% below than estimated project cost. Contractor B was granted the contract to Construction the Building TRC. His bidding cost was only 0.41% below than total estimated project cost. Due to the shortage of work, Sometime contractor bid very low cost. This unhealthy competition makes the project delays in the lowest bidding system.

According to above data sheet Project, TVC building was completed 25% works after 12 months. But it should be completed 50% work at that period. Project TRC building was completed 67% work at same time duration. Work progress for TRC building is looking at according to schedule. After 18 months, TVC building could be completed 75% according to schedule work but it was completed only 40% of work. TVC building work was 35% behind from the work schedule.

- *TVC Building after 18 Months*



Fig 2



Fig 3

• *TRC Building after 18 Months*



Fig 4



Fig 5

➤ *Multi-Criteria Evaluation Method*

Multi-criteria assessment technique is created based on multi-attribute utility hypothesis (Holt, 1998; Hatush and Skitmore, 1998; Chang, what's more, I've, 2002).

Although delicate cost, multi-criteria assessment technique considers other key factors, for example, specific preparation, Contractor's Organogram, Financial capacity, administration assets, past experience, execution record,

current workload, past customer/contractual worker relationship, wellbeing safety measure (Russell, 1992; Holt et al, 1994; Fong and Choi, 2000; Lai et al, 2004). These components or special criteria alteration in their significance. This is reflected in a weighting doled out to every standard, for illustration 40% for specialized arrangement and confirmation framework, 15% for capacity and experience.

For the most part, the multi-criteria assessment process incorporates four principle ventures as per following:

- *Responsiveness Assessment.*

When tenders are gotten, the first assignment for the assessment board is to distinguish whether a delicate is significantly receptive to the customer's prerequisites of value standard and venture length. On the off chance that a delicate neglects to meet the prerequisites, it will be rejected. Scoring against responsiveness criteria is then given to qualified tenders by all individuals from the assessment board exclusively and freely.

- *Technical Viewpoint Assessment.*

The assessment board at that point investigations a delicate plausibility of specialized arrangement and unwavering quality of value confirmation framework, plan confirmation framework and security practical steps. The assessment board likewise surveys regardless of whether a giver has sufficient experience, whether the task administrator is able, and whether the venture group incorporates important professions. Scoring against specialized perspective's criteria is at that point given to the tenders by all individuals from the assessment board.

- *Business Angle Assessment.*

After vital mistake redress, what's more, value modification, the assessment board decides whether a delicate cost is sensible by contrasting and the customer's base cost or on the other hand different baselines? A delicate will be rejected on the off chance that it is thought

to be irrational low or unusual high. Scoring against business perspective's criteria is then given to sensible tenders by various individuals from the assessment board.

- *Figuring of General Scores and Placing.*

The aggregate score of a delicate is figured by including every one of the results of the score granted and the weighting of every basis. It is computed by every person on board part. The last score of a delicate is the normal score by all the board individuals. The agreement is then granted to the delicate with the most elevated normal score.

Most local governments give layout assessment systems to distinctive sorts of ventures. Nonetheless, the particular choice criteria must be fitting for and particular to a specific undertaking. In this way, a customer can pick the correct format system and afterward make changes to the two criteria and their weightings (Pongpeng and Liston, 2003). For case, the customers in the important scale activities may choose nearby design arranging as a basis for specific perspective. Littler and more straightforward tasks may exclude it. The criteria and their weightings may differ from venture to extend, e.g., an open segment undertaking might be unique in relation to a private segment venture, and a building development undertaking might be unique in relation to a structural building venture.

- *Average Bid Evaluation Method*

In this method, the contractor is selected according to their financial proposal which cost is nearest to the average bid price of all submitted cost by bidders. To calculate the average bid cost, different methods used in different countries. Some country uses all bidder's submitted price to calculate the average bid price and some countries are eliminated the lowest and highest bid price and used remaining bidder price to calculated the average bid price.

Following example explain the more details of this different method.

Contractor	A	B	C	D	E	F
Bid Amount	700	850	950	1100	1250	1500
Average Bid amount	1058.33					
% different from Average	-3.58	-2.08	-1.08	0.42	1.92	4.42

Table 2

In lowest bid price evaluation method, Contractor A with 700 is to be selected. Average bid cost is 1058.33. As per Taiwanese method, the offer of bidder D i.e. 1100 is nearest to the average bid cost is selected and as per Italian

method, the offer of bidder C i.e. 950 is nearest to and lower than average bid cost is selected. This standard average method is useful for few numbers of bidders.

When many numbers of bidder, extra principles might be utilized, for example, lowest bidder and highest bidder are eliminated when calculated the average bid price and new average bid price is calculated. This system is used in

Switzerland. In above example bidders, A & F are eliminated from the competition and new average is 1037.50

Contractor	B	C	D	E
Bid Amount	850	950	1100	1250
Average Bid amount	1037.50			
% different from Average	-2.08	-1.08	0.42	1.92

Table 3

According to above Table, closest bidder D is (1100) selected.

There are different sorts of prohibitions now and again utilized, for example, in Peru and in the State of New York where the end model depends on the contrast amongst offers and the normal offer. Offers that lie 10 percent below or over the average will be eliminated, as expressed in the Peruvian controls for offering and contracting for open works (Albano, Bianchi, and Spagnolo, 2006). After eliminating the 10% below or higher than average cost, again calculate the average cost and selected the Contractor whose price is closer with average cost.

IV. CONCLUSION

This article has illuminated a comprehensive contractor selection methodology for owners and their representatives to professionally evaluate and select construction contractors for their large, and small construction projects. This study fills a supposed gap in the current owner selection approach, which is often expert by subjective and criteria.

Selecting tenders to the lowest bidders is the main reason behind slow construction projects and failure in meeting its standards in Nepal. All of the Construction Contractor selection procurement process have some limitation, complication, and drawback. But we can reduce these things by choosing the correct procurement method. We can use Multi-Criteria Evaluation Method or Average bid evaluation method to select the construction contractor for construction works to reduce the drawback in construction works in Nepal.

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