320 C

Uncertainties in stochastic decision making in bidding and expert systems

The primary objectives of contracting organisations include survival, growth, profit maximisation, prestige and good will, within an increasing competitive industrial environment. These objectives can only be achieved by ensuring an adequate workload. Bidding is the common form of procuring a construction project. During the process of preparing a bid for a

job, a number of crucial decisions are to be made. One such important decision is the mark up to be added to the basic cost estimate, to arrive at the final bid price, there by enabling the contractor to succeed in bidding while ensuring a reasonable profit margin and any other targeted objectives. Bidding strategy therefore plays an important role in the strategic development of a construction organisation.

However, still there is a question about the performance or rather efficiency of such strategies. Practitioners do not achieve the expected benefit from those strategies. They study the parameters and make their mark up decision hoping that it is the best mark up to win the project and make maximum profit. But at the end of the day they do fail either to win the bid or make maximum profit. Hence it is understood that there are certain hidden reasons, which misguide strategic decision-making. Thus, there is a paramount necessity to study and identify these inherent uncertainties. This research aimed at identifying those factors with the aid of questionnaire survey and interviews among the M1, M2 and M3 contractors. The data analysis revealed surprising findings. These were:

- There was a variability of around 6% in the basic cost for any project when M1 contractors estimate it. This nature highly affects the Bid/Cost ration analysis of past projects for future bid decisions.
- There was a variability of 40% in general overhead cost of contractors of subsequent grades. That is, between M1 and M2 or M2 and M3.
- The adjustments for preliminaries for a project need to spread between 2-7%, when outer district contractors compete with a local contractor.

In such situations, it is very difficult for contractors to make decisions as it falls beyond their intuitive and analytical capabilities. Hence, an advanced tool is necessary to tackle these uncertain and vague situations while concentrating on experience learning. An expert system with these characteristics would suffice to offset this dilemma and improve the bidding efficiency of contractors.