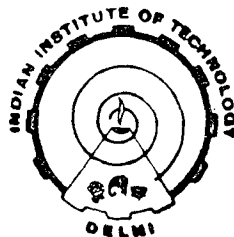


CONTRACT MANAGEMENT
(A RATIONAL APPROACH TO CONSTRUCTION CONTRACT PRICING)

by
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A thesis submitted to the
Indian Institute of Technology, Delhi
for the award of the degree of
DOCTOR OF PHILOSOPHY



Department of Civil Engineering
INDIAN INSTITUTE OF TECHNOLOGY, DELHI

JULY, 1989

C E R T I F I C A T E

This is to certify that the thesis entitled **CONTRACT MANAGEMENT (A RATIONAL APPROACH TO CONSTRUCTION CONTRACT PRICING)** being submitted by **Mr. T. Kalyana Sundaram** to the Indian Institute of Technology, Delhi, India, for the award of the degree of **DOCTOR OF PHILOSOPHY**, is a record of bonafide research work carried out by him under our supervision and guidance. The thesis work, in our opinion, has reached the standard fulfilling the requirements for **DOCTOR OF PHILOSOPHY** degree. The research report and the results presented in this thesis have not been submitted, in part or full, to any other University or Institute for the award of any degree or diploma.

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DEDICATED TO

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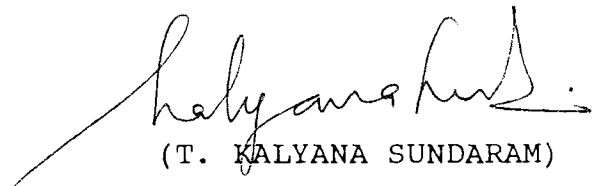
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ABSTRACT

This study suggests a rational solution approach to the markup decision problem of Indian Construction Contractors for a few types of problem situations.

The analysis of historical data on 181 Indian tenders brings out the similarities between how the Indian and foreign contracts have been responded to by tenderers. The 'spread' and the 'range' of the bids received seem to have some bearing in this context.

The limitations on the Contracting Organisation's resources, like working capital, manpower and equipments, are considered for selection of a portfolio of projects from preferred sectors through a Sectorwise Portfolio Selection Model (SPSM) so as to maximise the Sales Volume for an adopted planning period of a few years.

Detailed study of the Cashflow of six construction projects from different sectors at their pre-tender stage identified the most sensitive policies affecting the contractor's cashflow as comprising the owner's policies on advances, materials issue and retention on bills. This helped in identifying one completed project which, through moderation of the owner's policies, turned out to be nearly self-financing, i.e., without significant Captim conditions.

Considering owner-caused delays in terms of the time of onset and the duration of the delay, a Fair and Just Interim Payment Model was developed which would help in maintaining the original markup agreed to in the contract.

The effect of owner policies has been analysed also to develop a Minimum Markup Model which, under conditions of no time or cost overruns, will just neutralise the cost of working capital employed by the contractor.

The Willenbrock LOWBID Model seems to retain a nearest relevance to Indian contracting situations if the Expected Monetary Value Models are the choice.

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