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THE ROLE OF ESTIMATION ON CONSTRUCTION LIFE CYCLE

BY

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Abstract. Estimates serve a number of different functions in the construction industry. The reason for estimating is to provide the most realistic prediction possible of time and cost at any given stage in a project. Over the life of a project the estimator should be able to produce a series of estimates, from an early estimate at beginning, to the final account, in which the increasing accuracy of the estimate is reflected in the decreasing extent of risk and uncertainty. All estimates take the form of base estimates, plus allowances for uncertainties and specific contingencies as required. The role of the estimator or practitioner in cost engineering is vital to the success of a construction project. The estimators are responsible for predicting the most economic costs for construction in a way that is both clear and consistent. Although an estimator will have a feel for the prices in the marketplace, it is the responsibility of management to add an amount for general overheads, assess the risks and turn the estimate into tender.

Key words: cost estimate; estimator; cost engineering; cost construction life cycle; cost management.

1. Introduction

The estimated cost means an estimate of the final total cost of execution of a construction project. This definition requires two important issues, namely

- a) the estimate is an approximate calculation;
- b) estimate contains uncertainties.

Main purpose of estimating costs is to provide a size reference for cost control, to verify that the resources consumed during the execution of the project are kept in the costs assessed in feasibility phase of the project. Deviations from these issues can endanger the profitability of the project and a successful project can turn into a disaster. Accuracy of estimates of cost depends on existing information to reflect and their calculation. In Fig. 1 is shown a structure of total costs of a construction project in this regard.

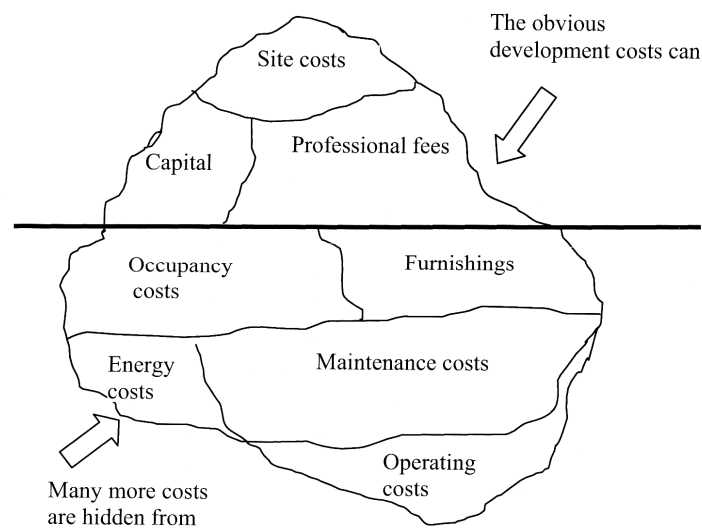


Fig. 1 – Components of life cycle costs.

There are several ways of classifying types of estimates of the costs of a construction project. Of these, the most significant are the followings:

a) *Estimates that depend on the degree of definition of the project.* Such estimates depend on the rate of breakdown of the architectural design and strength. Are defined as the level of information they have available the practitioner to perform engineering cost estimates.

b) *Estimates that depend on their use.* Such estimates are directly related to the utility for which they are made. Thus we have estimates used for the preparation of feasibility studies, estimates for preparing documentation authorizing the work, estimates for budget planning, estimates for the preparation of the contractors bid price, estimates for the aforementioned project, etc.

c) *The methodology to estimate.* To estimate costs using several methodologies, training and procedures that estimate the costs, which in turn can be probabilistic or deterministic in nature.

2. Types of Cost Estimates

During the life cycle of a project are made different estimates. These estimates are used for the various functions of project management. (s. Fig. 2).

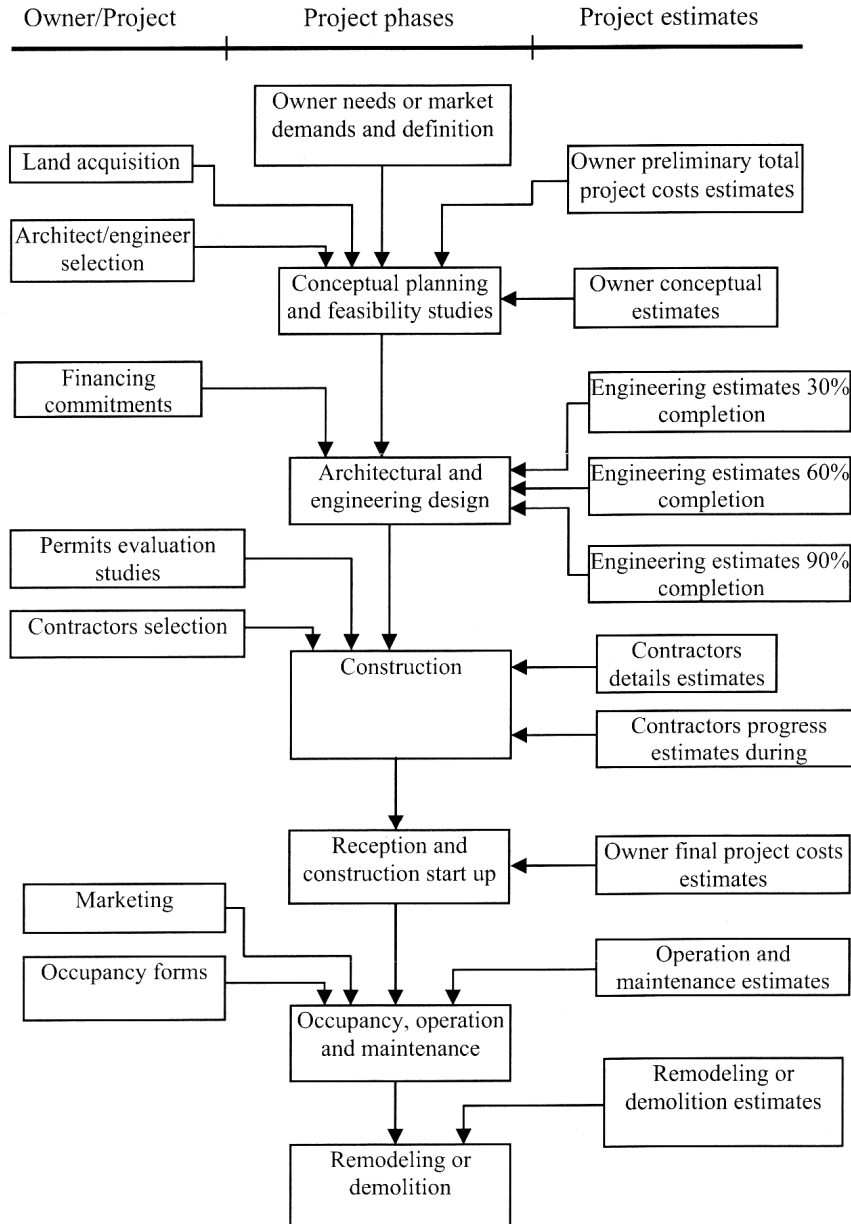


Fig. 2 – Costs estimates during construction life cycle.

Thus in an early stage of development of the construction project, the recipient needs an estimate of the likely cost of the project (investment) to assess the financial feasibility of its. This estimate is made available having a minimum volume of information as is required time when the investor has a vague idea of what wants to do. Once the design is started you can make estimates of the budgets of the various stages of project implementation. These budgets are grouped in a cost plan which is a summary of all project costs for construction. The size of this budget is checked periodically during the detail design, using the method of estimation of increasingly accurate with the design details of implementation. Also, in the initial budget period to undergo, changes and corrections are aiming to stick to the costs adopted in the content of the feasibility study. In case of correlation, are estimates for design alternatives. Finally, estimates are used to anticipate and analyse beneficiary bids. Estimates are also made after the start of actual implementation of the project, for cost control. Contractors made estimates of the maximum cost of their activities in such a way that with the amounts offered and contracted. During implementation estimated actual cost of works carried out, comparing them with limited costs and made the necessary corrections. Also during the execution, beneficiary estimate prices for the changes requested in the project and analyse their impact to the feasibility study and initial contract execution.

3. Role of Estimating in the Construction Industry

Estimates serve a number of different functions in the construction industry (s. Fig. 3). In the early stages of a construction program, the owner needs an estimate of the probable cost of construction. This conceptual estimate has to be prepared from a minimum amount of information because it is required at a time when the project is often little more than a vague idea in the mind of the owner. Once the design of the project is underway, budget amounts can be established for the various elements of the project. When the design is completed, a final pre-bid estimate can be compiled to anticipate the contractor's bid price for work. If this estimates is accurate, the obtained bid prices will be within the owner's budget for the project. Most contracts that transpire in the construction industry results from competing bids from contractors to supply goods and services to meet certain specification for a stipulated sum of money. Estimates are also required after works starts on the project. In the cost control programs, estimating is required to facilitate the control of expenditure of funds on a project.

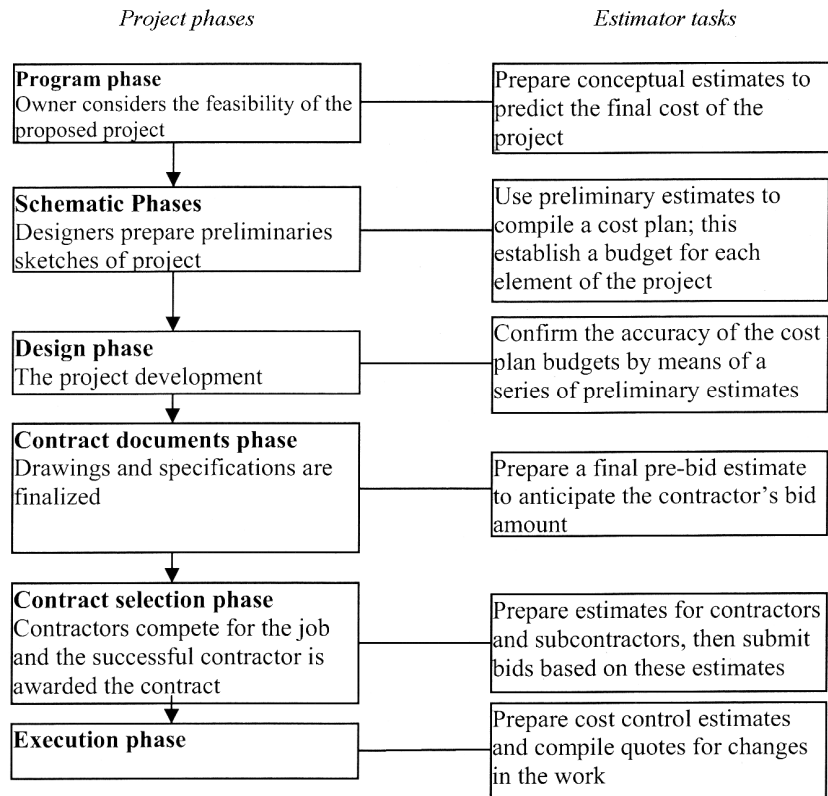


Fig. 3 – Role of the estimator of construction costs.

4. Conclusions

Estimating serves a number of purposes in the construction process including preparation of bids and cost control. The role of the estimator includes preparing conceptual estimates, preliminary estimates, pre-bid estimates, post-bid estimates, cost control, final project cost, cost on the operating construction period and cost of remodeling or demolition of the construction.

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ROLUL ESTIMĂRILOR PE PERIOADA DE VIAȚĂ A UNUI PROIECT DE CONSTRUCȚIE

(Rezumat)

Estimările sunt utilizate pentru funcții diferite în industria construcțiilor. Motivul pentru estimare este cel de a oferi cea mai realistă predicție în termeni de timp și cost în orice etapă a unui proiect. Pe durata de viață a unui proiect estimatorul ar trebui să fie în măsură să producă o serie de estimări, de la o estimare anticipată la început, la estimarea finală la terminarea proiectului, în care precizia tot mai mare de estimare este reflectată în scăderea riscului și incertitudinilor. Rolul estimatorului sau practicianului în ingineria costurilor este vital pentru succesul unui proiect de construcție. Estimatorii sunt responsabili pentru estimarea costurilor într-un mod clar și limpede. În ce privește realizarea costurilor și încadrarea în cheltuielile cuprinse în studiul de fezabilitate, responsabilitatea este a managerilor de proiect. Se face o trecere în revistă a diferitelor tipuri de evaluări ce pot apare pe perioada de viață a unei construcții, evidențiind rolul estimatorului sau a practicianului în ingineria costurilor în succesul unui proiect de construcție.