THE FACTORS AFFECTING THE COST ESTIMATING IN PRE-CONSTRUCTION PROCESS

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MARCH 2006

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Thesis submitted in partial fulfilment of the requirement for the Degree of Bachelor Housing, Building and Planning (Hons. Quantity Surveying)

MARCH 2006

DECLARATION

This thesis is submitted for academic research purposes to fulfil the requirement for the Degree of Bachelor Science of Housing, Building and Planning (Hons. Quantity Surveying), University Science Malaysia. All the information submitted in this research project is own work unless it is stated otherwise.

This dissertation has not been submitted and receives full or partially to fulfil any other degree requirement and currently it is not being presented for other degree.

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ABSTRACT

Cost is important asset to determine the budget of the construction project. Cost estimating should be determined before go to the next step in construction stage. It is useful to make sure the project is feasible to build or develop. Cost estimating is also important in determining the budget of the construction's project. The estimates made in the early phases of a project are particularly important because they affect the most basic decisions about a project: whether it will be undertaken at all; how large it will be; how it elaborate, sophisticated and durable it will be; and how much it will cost.

Even though the cost estimating was prepared at early phase of the project, but how far the estimates should be used as an actual cost construction? Therefore, there have a lots of factors can affect the accuracy of cost estimating. The impact of inaccurate cost estimating will influence the subsequent process in the construction process.

This research is a preliminary study to understand the level of respondent understands about the cost estimating and the factors affecting the preparation of early cost estimating. Besides that, the researcher tries to seek the factors affecting the early cost estimating in design stage based on the characteristic and the nature of the proposed project. The research have to recognized the factors affecting the cost estimating and the effects of the project's characteristics in order to understand the cost estimating performance and the factors affecting it. The characteristics of the construction project will affect the cost estimating accuracy. It is useful information to change or improve the accuracy of cost estimating (Final Preliminary Detailed Abstract).

Besides that, this research also emphasis on the budget-related problems evaluated from various consultants and client representative points of view.

From the data collections which were received interviews and past records project, defined that the characteristic of the project affected the others factors which can influence the inaccuracy of the cost estimating in design stage. This research gives us some guidelines to prepare the accuracy of cost estimating. It is also give some suggestions on how to generate the ideas and how to overcome the problems arise. Overall, this research fulfils the main objectives of this research.

ABSTRAK

Kos merupakan suatu aset penting dalam menentukan sesuatu perbelanjaan yang harus disediakan bagi sesuatu projek pembinaan. Anggaran kos harus dipertimbangkan sebelum usaha-usaha selanjutnya diambil kira dalam menentukan keupayaan projek yang hendak dibangunkan. Anggaran kos merupakan suatu usaha yang penting dalam menentukan perbelanjaan sesuatu projek pembinaan. Penyediaan anggaran kos awal pada peringkat permulaan projek boleh memberi impak kepada kos perbelanjaan projek dimana ia dapat memberi jaminan terhadap; anggaran kasar projek, bagaimana dihuraikan, kerja-kerja yang terlibat, kepiawaian dan ketahanannya serta kos perbelanjaan projek.

Walaupun anggaran kos awal dapat ditentukan pada peringkat awal, namun sejauhmanakah ketepatan anggaran kos awal tersebut dapat diguna pakai dalam menentukan anggaran kos sebenar? Hal demikian kerana terdapat beberapa faktor yang boleh mempengaruhi ketepatan anggaran kos. Ketidaktepatan anggaran kos akan mempengaruhi proses pembinaan yang selanjutnya.

Kajian ini merupakan suatu kajian awal bagi memahami tahap kefahaman responden terhadap anggaran kos dan faktor–faktor yang boleh memberi kesan terhadap penyediaan anggaran kos awal. Selain itu, penulis cuba mengupas faktor–faktor yang mempengaruhi anggaran kos awal pada peringkat rekabentuk berdasarkan ciri-ciri dan keadaan projek yang hendak dibangunkan. Dalam proses memahami pelaksanaan anggaran kos adalah lebih baik mengenalpasti faktor-faktor yang menpengaruhi anggaran kos, kesan-kesan disebalik ciri-ciri projek yang hendak dibangunkan. Hal demikian kerana ciri-ciri sesuatu projek pembinaan boleh mempengaruhi ketepatan anggaran kos dan merupakan suatu sumber maklumat yang

berguna kepada juruukur bahan dalam mengubah atau meneruskan usaha dalam meningkatkan ketepatan dalam anggaran kos akhir.

Disamping itu, kajian ini turut memberi penekanan terhadap penilaian masalah daripada nilai-nilai perspektif pelbagai konsultan dan ketelitian pihak klien terhadap faktor-faktor yang mempengaruhi ketepatan anggaran kos.

Hasil daripada pengumpulan data, didapati bahawa keadaan dan ciri-ciri projek dapat memberi kesan terhadap faktor-faktor lain dimana dapat mempengaruhi ketidaktepatan dalam anggaran kos bagi peringkat rekabentuk. Kajian ini memberikan panduan kepada penyediaan anggaran kos oleh juruukur bahan serta memberi beberapa cadangan terhadap pengeluaran idea untuk membaiki kekurangan yang ada. Keseluruhannya, ia menepati matlamat dan objektif utama kajian ini.

Acknowledgement

First of all, I would like to express my gratitude to Almighty God, worth his love and blessing has enabled me to complete this dissertation successfully as a part of fulfilment in obtaining Degree of Bachelor Science of Housing, Building and Planning (Hons.Quantity Surveying)

I also would like to say thank you to my supervisor, Prof. Madya. Dr. Omar Osman; who has been a very supportive person in giving advices and guidance. This wish also specially dedicated to my lecturer, Mr. Azlan Raofuddin Hj. Nuruddin, Dr. Rashid, Madam Lim Yoke Mui and Dr. Wira Mohd Shafei because their advices and encouragements have been an important tool in motivating me up in finishing this research paper.

I would like to thank you my family especially my parents who gave me their emotional support and inspired me all the time. To all my friends and my colleagues, thank you for everything.

Introduction

Cost is major factor in most decisions regarding construction, and cost estimates are prepared throughout the planning, design and construction phases of a construction project. All of these estimates are important because they invariably influence the expenditure of major sums. However, estimates made in the early phases of a project are particularly important because they affect the most basic decisions about a project: whether it will be undertaken at all; how large it will be; how elaborate, sophisticated and durable it will be; and how much it will cost. For example, what the budget will be and, in the case of federal agencies, what the congressional appropriation will be.

Anyone spending their own money or advising other on the spending as money is concerned with obtaining good value for the money spent. No sensible person will knowingly accept an inferior article if a better can be obtained for the some money. The more complex the article the more difficult it is to decide whether one alternative offers better value for money than others and the greater the need to seek the advice of a specialist consultant.

Value for money depends on the priority of appearance, function and cost. Appearance must always be largely subjective but function can usually be at least partly judged against various objective criteria.

Early cost estimating or prediction of the successful tender bid is recognizes as one of the important function of the quantity surveying profession. Despite this recognized important, many participating quantity surveyor are unaware of their own performance as regards to the level of accuracy. The objective of the research is to determine the level of accuracy in cost

estimating achieved by a quantity surveying firm. The study is done with reference to are typical quantity surveying firm in Malaysia in entails statistical analysis of some cost data from the firm and detailed study its operations in relation to cost planning procedure.

According to American Association of Cost Engineer defines accuracy as "the degree of conformity of a measured or calculated value to some recognized standard or specified value". Accuracy depends on the amount of quality information available as well as the judgment and experience of the estimate. Consequently, as the amount of information and specific details increase, so does the degree of accuracy

There have many improvements in the policies and practices regarding the preparation of early estimates. For my research, I limit my scope study intends explore the factors affecting the cost estimates at design stage. The study will include the perception of various consultants and clients representatives on the accuracy and the factors affecting notable estimates carried out by project team consisting of quantity surveyors and aided by other consultants. For this early cost estimating I mean the estimating in pre- programming estimates or estimating in the preliminary program estimating. Therefore, the determination of the tough competition, incomplete drawing and specification, the current workload not a issues should be discuss because this categories will determine when we preparing the estimating for the tendering especially for the Bills of Quantities.

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CHAPTER ONE: INTRODUCTION

1.1 Background

"In competitive hard-money bids, the cost estimates is the single most important element involved in the series of event that lead to profitable completion of the contract"

(Hick, 1992)

The systematic measurement and pricing of building construction work has a history that, among English-speaking people, goes back at least 300 years and probably twice that far. During the last 100 years the industry has been stimulated by society's growth and industrialization and by the work and interest of certain professional bodies.

Cost estimating for a proposed project is probably are of the most importance tasks performed by the quantity surveyors and is the key activity in the quantity surveyor profession's cost planning services. Although the building industry in Malaysia and UK has undergone tremendous changes in terms of complexities of projects, changing technologies and even style of project and contract management, practicing quantity surveyors have not changes their prediction techniques over the lost three decades in both countries.

Estimates enables designers to determine the likely construction costs, evaluate cost efficiently of the design and finally to offer useful cost advice to client as the design progress. Cost estimate also provide a yardstick against which the successful tender bid (actual outcome) is evaluated.

Having recognized the function and importance of the cost estimating, one would then expect the quantity surveyor to be able to predict prices to a certain acceptable degree of

accuracy. Regrettably, there is no specific definition for this acceptable level, at least not in Malaysia at this point in time of the study.

A construction estimate is developed in three separate but interlocking parts, taking -off, pricing and sub bids. Developing an estimate is an exacting and demanding professional task, but it is not an exact science. A good estimator is a good construction technician who, through experience and special interest, has the ability to measure quantities and a proper feeling for cost, rather than being a

Estimating is this context is the technical process of predicting the cost of construction by the client's project quantity. The technical processes adopted by these two key parties of a project to arrive at the final project cost differ. Cost estimating is the cost of project estimated by the consultant's quantity surveyor using some standard measurement techniques and with references to some available cost data sources.

The assumption of the accurate of an estimate by Morrison in a paper published in *the Construction Management and* economics in1984 is measured by its deviation from the tender received in competition for the project. Estimate is defined in the *New Britannica Website Dictionary* as "to judge or determine tentatively or approximately the value, size, cost of ...." By this definition, estimates are not expected to be 100% accurate since they involve prediction of outcomes that an uncertain. In estimating the cost of a building construction project, hundreds and thousands of measurable items together with as much number of non-quantifiable factors are involved. Despite an expectancy of inaccuracy, the estimated cost is still relied upon the decision making on the implementation of any projects. The level of accuracy therefore becomes an important controlling factor upon which the decision makers can rely or to make a final decision on the projected cost commitments to a project.

Morrison in his publication "The accuracy of quantity surveyor's cost estimating" concluded the present methods of estimating used by Quantity surveyor produced results which are not sufficient accurate to meet all the objective of cost planning and concluded that the most likely area for improvement lies in the development of methods using largely cost databases. Another renovation authority to have studied and researched into this area was *Ogunlana and Thorpe* from *the Loughborough University of Technology UK.* The views o some of these authors are reviewed.

1.2 Scope of Study

- Cost estimating in the early construction stages.
- The uses of cost estimating.
- The techniques used in cost estimating.
- Role of consultant in early cost estimating.
- The factors influence cost estimates in design stage based on the characteristics and nature of the projects.

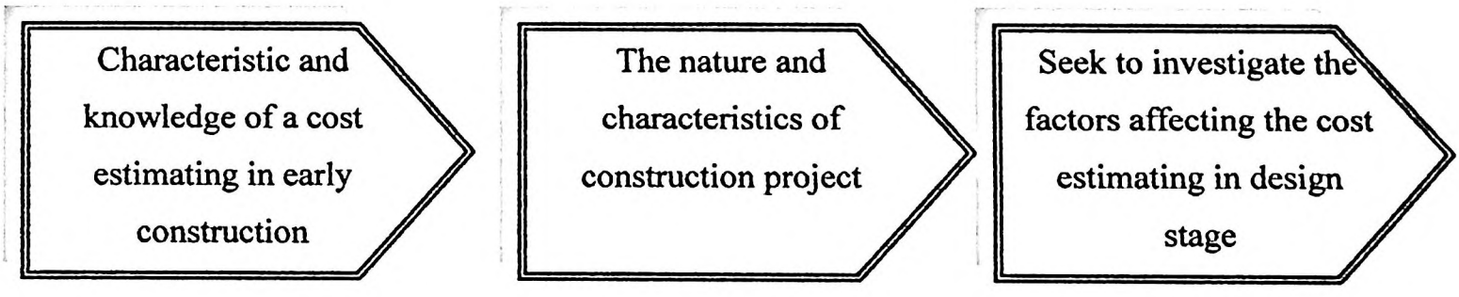
1.3 Glories, Problems and Initiatives

When looking at development case, cost is major factor in most decisions regarding construction, and cost estimates are prepared throughout the planning, design and construction phases of a construction project. All of these estimates are important because they invariably influence the expenditure of major sums. However, estimates made in the early phases of a project are particularly important because they affect the most basic decisions about a project: whether it will be undertaken at all; how large it will be; how elaborate, sophisticated and durable it will be; and how much it will cost. For example, what the budget will be and what the congressional appropriation will be.
(Commission on Engineering and Technical Systems (CETS), 1990)

Price prediction can never be 100% accurate as the causes of price variability are numerous and many UK authors have attempted to identify these causes. According to Flanagan, these causes can be classified into macro level, macro level are those general

factors which influence the prices of the buildings throughout the country, micro level are those factor which only affect the project specifically. This study is confined to researching into the price prediction of practicing quantity surveyor as such as the influence of the factor at macro levels will not be discussed.

Therefore, the dissertation tries to explore the various additional factors affecting the cost estimating in pre-construction process and also contributes to budget-related problems evaluate from the perspective view of various consultant and client representative on the accuracy and the factors affecting notable estimates carried out by project team consisting of quantity surveyors and aided by other consultants.



1.4 Objectives of the Study

This study is intended to explore the factors affecting the accuracy of cost estimates at design stage. The study will include the perception of various consultants and clients representatives on the accuracy and the factors affecting notable estimates carried out by project team consisting of quantity surveyors and aided by other consultants.

To establish the causes of inaccuracy in early cost estimating

Causes of the inaccuracy will have to be identified so that corrective measure can be taken accordingly.

- To determine the different is factors or the variable for different project characteristic

Besides identifying the causes of inaccuracy generally, the study also enable cost consultant to determine their factors affecting the cost estimating for different project characteristics such as different contract arrangement, building type, nature of work, time period and size of the project.

1.5 Goals

- Intends to give general idea of consultant's cost estimating practices about the factor affecting the cost estimating in design stage based on the characteristics and the nature of the projects.

1.6 ORGANIZATION OF THE THESIS

Chapter 1: Research Background

This chapter has been a general introduction to research and outlines the main aims and objectives of this thesis. Besides that, this chapter also states the general background of the title, glories, problems and initiatives, the aims and objectives of this research and study, the goal, the scope of research, the method used got the information or data about study and the organization of this thesis.

Chapter 2: Literature Review

Includes literatures review on the research topic, the continuous from the first chapter. This chapter will focus on the definition of cost estimating, cost estimating in Pre-construction process, the uses of early cost estimating, the techniques used in cost estimating, and the element or factors affecting the early cost estimating. It discusses more about the early cost estimating in pre-construction process, the factors affecting this cost estimating and its elaboration.

Chapter 4: Research Methodologies

Described the research methodology for the study including means involve in the data collection and strategy used in the analysis of the data achieve the desire objective of the study.

Chapter 5: Data Analysis and Data Interpretation

Provided the information about the survey, analysis the survey question and the collection of past record (cost estimates Quantity Surveyor based on the qualitative research. Provide the observation the data collection of the past record (cost estimates Quantity Surveyor) and give some recommendation and solution for the purpose topic, generate and call the ideas to enhance the supporting reason, etc. It also stands out the aim and the main objectives of this research.

Chapter 6: Conclusion and Recommendations

This chapter concludes the whole study based on findings. The objectives of the research and how to achieve the objective will be described. Some recommendation will also be generate from the finding and the limitation during the research will be highlighted.

CHAPTER TWO: LITERATURE REVIEW

.1 Definition of Cost stima es

Cost estimating is the determination of probable construction cost of any given project and also a process subject to many variables that may affect the actual construction of the project. Regardless of the variables involved, must be strike to prepare as accurate an estimate as possible. Estimating is not a guessing game. The work must be carefully organized based on the judgment and records of the completed past project to get the accurate bids. When, the estimate is prepared before the actual construction of the project, a great deal of study must be put into the construction documents; and this makes estimating are of the important phase of any contractor's business or any construction project.

A full estimate is essentially a report detailing the projected costs associated with a certain project. These costs include everything from actual building materials to labour to machinery and transportation. Some of these costs will be relatively stabile, such as hourly rate for a labourer doing a particular job.

The Code of Estimating Practice produced by Chartered Institute of Building (CIOB, 1997) defines estimating as "the technical process of predicting costs of construction" and tendering as "a separate and subsequent commercial function based upon the estimates".

However, according to Ashworth and Skitmore (1983) and Smith (1995), contrary to the CIOB (1997), the definition of estimating cannot be a precise technical and analytical process but is to a large extent, a subjective process. Consequently, they tent to suggest to the estimator consider factor relevant to successful execution of a project, the factor is apart from

various items such as production rates, material wastage, etc or other historical cost data derived from the company's file.

An estimates involves calculate the cost of work on the basic of probabilities. The calculations are of two kinds, relative to the two primary parts of an estimate; 1) measurement (by mensuration), 2) pricing (by arithmetic). These two kinds of calculation are simple, and because they are simple they often not given the attention they deserve. All measurement is approximate, and this fact should be remembered because it is invariable. Only the degree of approximation is variable and the acceptable degree of accuracy depends on the purpose and methods of the measurement. Since all estimates start with the measurement of work; it follow that all estimates are approximate to variable degree in their first part, the measurement. (Keith Collier, *British Columbia Institute of Technology*)

According to Keith Collier also, the second part of estimates, the pricing, the degree of approximation is even greater because of the difficulty in predicting all the probabilities of such things as labour productivity and site conditions. The ability to predict probabilities largely depends on the data available from past experience and the estimator's intuition, which is, perhaps the mental use of data without mechanical means.

Cost estimating also is one of the most important steps in project management. A cost estimate establishes the base line of the project cost at different stages of development of the project. A cost estimate at a given stage of the project development represents a prediction provided by the cost engineer or estimator on the basic of available data. According to the American Association of Cost Engineers, cost engineering is defined as that area of engineering practice where engineering judgment and experience are utilized in the application of scientific principle and techniques to the problems of cost estimation, cost control and profitability.

According to Neill Morrison (1984) defined that; the accuracy of an estimate is measured by the deviation from the lowest acceptable tender received in competition for the project. He also assumed, if the estimate are prepared in the early design stages for schemes which cost estimates produced during the various design stages of a construction project have the objective of predicting the tender price level (i.e. lowest tender) which might be expected to be achieved if that same scheme were assumed to be fully detailed and competitive tenders could be invited on the relevant contract particulars.

2.2 Construction Cost Estimating Terminology

According to Allan Ashworth (1988), there are some of the terminology commonly used in practice, related to building cost and prices.

Budget

A budget will be prepared before the building the building owner decides to proceed towards the design and construction of a project. This budget will often be the limit on the amount of money he wishes to spend. It may have been determined on the basic of the capital available plus any facilities for borrowing and this will be linked to the repayment capabilities.

Approximate estimate

In order to satisfy the budget proposals an approximate estimate of cost is required based upon the sketch design. This will indicate whether the project is feasible in financial terms. The approximate estimate should be prepared by the quantity surveyor. Although it may be no less accurate than other types of estimates, it is described as approximate since the data

on which it is prepared can be particularly vague. There are several different methods that can be used for the preparation of approximate estimates. In essence the methods that are chosen are those that reflect familiarity, simplicity, speed, accuracy and ease of operation.

The construction industry and related professions use a variety of terms to indicate different types of estimates. (Report Review Committee of the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine, 1990)

Pre-programming estimate

An estimate of the probable magnitude of total cost construction cost, usually based on single units costs (such as dollar per gross floor area), for use in the earliest planning phases of a project.

Programs estimates

An expression of probable total construction cost, usually based on a combination of single unit costs and the theoretical costs as related to the functional program requirements of the facility and the general design concepts to which the budget and the program of requirements relate.

Concept/ schematic estimate

A construction cost estimate based on a proposed scheme and a quantitative analysis of proposed facility or building components and subcomponents using both historical and analytically derived costs. Design criteria and scope, including alternates, may be established in relationship to the funding limitations of the program of requirements.

Design development estimate

A construction cost estimate based on quantities derived from a preliminary but definitive set of drawings (frequently about the 35 percent complete) and current in place costs. The design and estimate may be used as the basic for a budget request and/or to verify that established criteria are being followed, that the scope of the project is not being expanded and the changes in scope are being documented. Some assumptions are made where design documentation is not complete.

2.3 COST ESTIMATING IN PRE-CONTRACT PROCESS

2.3.1 Introduction

Major construction projects are complex undertakings that involve many different individuals and organizations and a number as separate steps. Mistakes made in any step by any participant may result in budget-related problems. The ultimate goal construction is to acquire cost-effective that meet the needs of the users within the budget available. The process involves a series of steps and that the successful completion of the project is as dependent on the early steps as the later steps.

As we known as, the construction can be divided to two major process in the construction industry are pre-construction and post-constructions. Cost is a major decisions regarding construction that the cost estimates are prepared throughout the planning, design and construction phases of the construction project. Estimates made in the early phases of the project are particularly important because they affect the most basic decision about the project; whether it will be undertaken at all; how large it will be; how elaborate, sophisticated and durable it will be; and how much it will cost. Therefore, the early phases of construction are very important that must be known their process or their series of steps.

"The pre-construction phase of a project can be broken down further into conceptual planning schematic design, design development and contract documents. The pre-construction process phases require continuous owner and designer involvement and interactions since during this project stage the ideas and requirements of the owner must be clearly translated into contract documents by the owner." (Frederick E. Gould, 1997).

Thomas (1978) discovered that the early stages of the project pre-construction are ones in which the major decision are made. It is the best opportunity for major value analysis. The owner (and/or the project manager) is hampered by a lack of definitive information regarding the project. Accordingly, analysis in the early stage must be directed on a more generic basic than the detailed evaluation during construction.

According to Thomas C. Kavanagh, *et. al*, 1978), there are pre-construction activities which take from one of three of the times construction phase itself. However, according to Laufer *et. al* (1993), there are three separate planning stages throughout project life, pre-bid, pre-construction (from bid award to full mobilization and during construction).

The various stages of this pre-contract in the Outline Plan of Work provide a useful checklist of good practice which set out a guide to good pre-contract procedure. The procedures, described in the plan of work hold good not matter how the project is developed. (The Aqua Group, 1986)

According to RIBA, the pre-contract procedure includes the following stages; (a) inception stage to prepare a general outline of requirement and plan future action, (b) Feasibility study stage; to provide to client with an appraisal and recommendations on what he may determine the form in which the project is to proceed, ensure that it is feasible, functionally, technically and financially, (c) Outline Proposals stages; to determine general approach to layout, design and construction in order to obtain an initiative approval of the client on the outline proposals and accompanying report, (d) scheme design stage; to complete the brief and decide on particular proposals, including planning arrangement appearance, constructional method, outline specification and costs, to obtain all approvals, (e) detail design stage; to obtain final decision on every matter related to design, specification, construction and cost, (f)

Production Information stage to prepare information and make the final detailed decisions to carry out work, (g) Bills of Quantities to prepare and complete all information and arrangements for obtaining tender and (h) tender action; action as recommended in *NJCC Code of Procedure for Single Stage Selective Tendering 1977*

2.3.2 Cost Estimating Practices in Pre-Contract Process

A different approach is used throughout the different phase as the life cycle of the construction project to obtain the cost estimates. At every phase, the purpose of the cost estimating is different and is conducted by different parties. Application of cost estimating at the early stage provide the client with the likely financial commitment for the proposed project and assist the team in producing the best design which satisfies the client requirements within the time and cost limit. Normally, the application of cost estimating is done by the consultant Quantity Surveyor (QS) in order to obtain the preliminary estimate for the client.

The research "A survey of current cost estimating Practice in UK" in the Code of Estimating Practice that produced by the Chartered Institute of Building (CIOB, 1983) in Akintola Akintoya and Eamon Fitzgerald (1999), defined estimating as "the technical process of predicting costs of construction" and tendering as "a separate and subsequent commercial function based upon the estimates."

This technical process is emphasized by Kwalye (1994) as the process or function undertaken to assess and predict the total cost of executing an item(s) of work in a given time using all available project information and resources.

According to American Association of Cost Engineer defines accuracy as "the degree o
formity of a measured or calculated value to some recognized standard or specified value".
curacy depends on the amount of quality information available as well as the judgment and
perience of the estimate. Consequently, as the amount of information and specific details
crease, so does the degree of accuracy.

The comparison of estimating and tendering using the concept systems, estimating is being classified as a closed system and tendering as an open system. Estimating takes place in relatively sheltered environment and tendering as an open system. Estimating takes place in a relatively sheltered environment and tendering in a changing and dynamic environment. (Green, 1989)

Outline Plan of Work

Plan of work diagram 1

stage	Purpose of work and decisions to be reached	Tasks to be done	people directly involved
A. Inception	to prepare general outline of requirements and paln future action	set up client organisation for briefing. consider requirements,appoint architect	all client interests, architect
B.Feasibility	to prepare the client with an appraisal and recommendation in order that he may determine the form in which the project is to proceed, ensure that it is feasible,functionally,technically and financially	carry out studies of user requirements, site conditions, planning, design and costs ,etc..as necessary to reach decisions	client's representatives, architects, engineer and QS according to nature of project
C. Outline Proposals	to determine general approach to layout,design and construction in order to obtain authoritative approval of the client on the outline proposals and accompanying report	develop the brief further.carry studies on user requirements, technical problems, planning, design and costs as necessary to reach decisions.	all client interests, architects, engineer, QS and specialists as required.
D. Scheme Design	to complete the brief and decide on particular proposals,include planning arrangement appearance, constructional method,outline specification and costs and to obtain all approvals.	final development of the brief, full design of the project by architect.preliminary design by engineers, preparation of cost plan and full explanatory report. submission of proposals for all approvals.	all client interests, architects, engineers,QS and specialist and all statutory and other approving authorities

	Brief should not be modified after this point		
E. detail design	to obtain final decision on every matter related to design,specification construction and cost.	full design of every part and component of the building by collaboration of all concerned. complete cost checking of designs.	arhitects, QS, engineers and specialists, contractor (if appointed)
	any further change in location,size, shape or cost after this time will result in abortive work		
F.Production information	to prepare production information and make final detailed decisions to carry out work	preparation of final production information i.e drawings, schedules and specifications	Architects, engineers and specialists, contractor (if appointed)
G. Bills of Quantities	to prepare and complete all information and arrangements for obtaining tender.	preparation of Bills of Quantities and tender documents	Architects, QS and contractor (if appointed)
H. tender action	action as recommmnded in NJCC *Code of Procedure for Single Stage Selective Tendering 1977*	action as recommmnded in NJCC *Code of Procedure for Single Stage Selective Tendering 1977*	Architects, QS,engineers contractor and client

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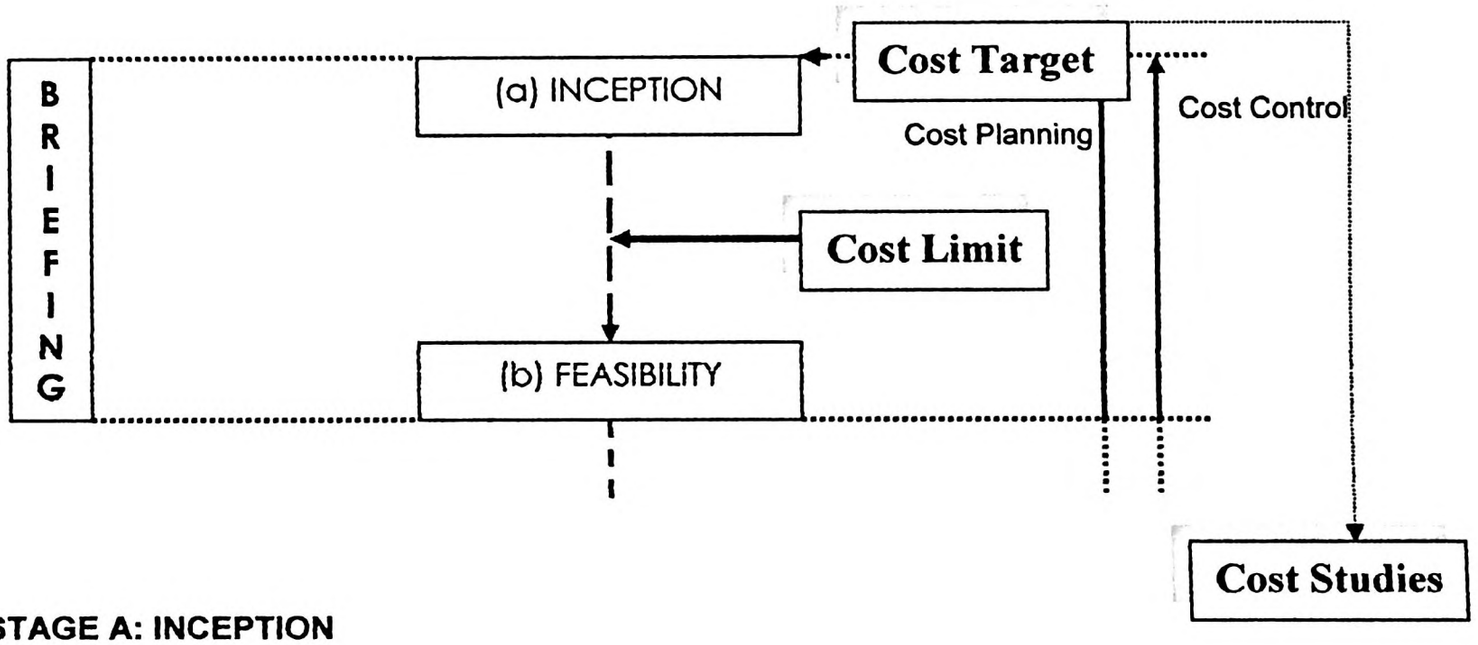
Note: on small jobs without quantities Stage G will be omitted and stages E and F may be combined

Table1: Outline Plan Of Works

2.3.3 TASKS IN EVERY RIBA PLAN OF PRE-CONSTRUCTION WORK STAGE

Before we moved far away, we should know about the tasks in each pre-contract stage comprise the early cost estimating as known as the approximate estimate as stated below;



STAGE A: INCEPTION

This is the starting stage of the project development. It is to prepare general outline of requirements and plan for future action that should provide a list of the client's requirements in terms of design and construction and cost. According to Allan Ashworth (1988), stated that the client will be determining the objectives of his project. They will ask, "What type of building or how much money do we want to develop or provide or how much money do we want to spend on the project?" The whole scheme will be initiated in the client's mind because of the either a desire or need to build.

They will appoint an architect to obtain their brief. It is the architects' task to separate what the clients want and what they really need. (David Chappell & Christopher J. Willis (1992)

The project team has to work together to produce a clear definition of the requirements for the project and for the expenditure. The client can then be given some preliminary thoughts on the need for consultants and specialists sub-contractors. The first part of briefing documents sets out the goal and context of the project. It is necessary to examine how and when the work will be constructed. For example, if the client is in an urgent rush for his building it may be prudent to consider some form of prefabricated construction. It will be necessary for the designer to obtain details requirements as soon as possible. However, the mission is to make sure the client understand in details about the project. Setting out the context is an important component for helping clients understands the background of the project.

According to Ivor H.Seeley (1984), certainly the data information should be get from the employer are the basic details which common to most projects, and these are listed as below:-

i. The nature size and function of proposed building;

ii. The time and financials limits relating to the projects;

iii. Information relating ownership of the site; boundaries, restrictive covenants and other associated matters;

iv. Current position with regard to any planning application; and

v. Other members of design team to be appointed.

Douglas J.Ferry (1999) emphasised that, "The design work should not start until the brief itself is right". These mean that the architect cannot start his work until the employer decides