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Signature Name of Supervisor Date

P.M Dr. Mohamad Ibrahim Bin Mohamad
10th May 2007

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REVIEWING THE CURRENT PRACTICE OF PROFESSIONAL FEES FOR CIVIL AND STRUCTURAL ENGINEERING CONSULTANCY SERVICES

SALEHIN BIN SALLEH

A project report submitted in partial fulfillment of the requirements for the award of the degree of Master of Science (Construction Management)

> Faculty of Civil Engineering Universiti Teknologi Malaysia

> > MAY 2007

I declare that this project report entitled "Reviewing the Current Practice of Professional Fees for Civil and Structural Engineering Consultancy Services" is the result of my own research except as cited in the references. The report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Signature Name Date

Salihmi

SALEHIN BIN SALLEH 10th May 2007 ii

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To my beloved wife Kalthum and my children Hanisa, Muhammad Izuddin and Nurul Amira

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I would like to acknowledge my supervisor Associate Professor Dr. Mohamad Ibrahim Mohamad who has given me support and guidance throughout the period of this study. His patience and perseverance towards the outcome of this study subject is of the highest standard. Without him this project report will not become a reality.

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ABSTRACT

The role of Civil and Structural Engineering Consultants (C&S) is very important in the construction industry. It has been the main catalyst of infrastructure development in Malaysia. Virtually all construction projects need Civil and Structural Engineering Consultants. As for the services rendered, the Civil and Structural Engineering Consultant will be paid fees for their professional input, which is commonly known as the 'Professional Fee'. Professional Fee is the main source of income for consultants to sustain their business. Currently the fee paid to Civil and Structural Engineering Consultants is said to be relatively low compared to other professionals in the construction industry. This situation leads to the disssatisfaction among them. This study is undertaken to address this discontent as well as other related issues to it. During the preliminary stage of this study the validity of this issue has been established. Then the study focused on the implication of this low fee issues to the consultants and related problems associated to it. The main methodologies adopted for this study are interviews with the expert panels and questionnaire survey. The respondents to the questionnaire survey are the professionals in Malaysia construction industry. The result of this study revealed that feeling of dissatisfaction towards the present system of professional fees structure is justified. Besides that, the study also identified problems and implications resulting from the current practice of the professional fee system. It is recommended that the relevant institutions in the construction industry will take the initiative to scrutinise this issue more seriously. This is to protect the interest of the consultants for their survival and to sustain their excellent service to construction industry in the future.

ABSTRAK

Peranan Perunding Kejuruteraan Awam dan Struktur (C&S) adalah sangat penting di dalam industri pembinaan yang menjadi nadi penggerak utama kemajuan infrastruktur di Malaysia. Boleh dikatakan setiap projek pembinaan memerlukan perkhidmatan Perunding Kejuruteraan Awam dan Struktur. Bagi setiap perkhidmatan yang diberikan, mereka akan dibayar yuran yang lebih dikenali sebagai yuran professional. Yuran Profesional adalah merupakan sumber pendapatan utama bagi perunding untuk menampung perniagaan mereka. Secara relatif jika dibandingkan dengan profesional lain dalam industri pembinaan, yuran Perunding Kejuruteraan Awam dan Struktur adalah dikatakan lebih rendah dan keadaan ini menimbulkan rasa tidak puas hati mereka. Oleh itu kajian ini telah dijalankan untuk mengenalpasti isu yang berkaitan dengan ketidakpuasan mereka terhadap persoalan ini. Diawal kajian kesahihan permasalahan ini telah ditentukan dan seterusnya fokus diberi terhadap implikasinya kepada perunding dam masalah lain yang wujud. Metodologi utama yang digunakan dalam kajian ini adalah temubual dengan panel pakar dan borang soal selidik. Responden bagi kajian ini terdiri daripada professional dalam industri pembinaan diMalaysia. Hasil daripada kajian telah mengesahkan rasa tidak puas hati terhadap sistem yuran profesional yang diamalkan kini. Selain daripada itu kajian juga telah mengenalpasti masalah dan implikasi daripada sistem yuran yang diamalkan kini. Saranan juga telah dibuat terhadap institusi yang mempunyai pengaruh dalam industri pembinaan agar mengambil inisiatif untuk mengkaji isu ini dengan lebih serius demi untuk menjaga kepentingan Perunding Kejuruteraan Awam dan Struktur agar dapat terus bertahan dan meningkatkan kecermelangan perkhidmatan mereka untuk industri pembinaan di masa hadapan.

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LIST OF SYMBOLS

A.I	Average Index
Fees1	Fees for Class III works (BEM)
Fees2	Fees for (Class III – Class II) works (BEM)
Fees3	Fees for (Class I – Class II) works (BEM)
Fees4	Fees for Reinforced Concrete Portion (BEM)
Fees _(basic)	Basic Professional Fees
n	Total Number of Samples
n1	Sample for Group 1: C&S Consultants
n2	Sample for Group 2 : Others
R.I	Relative Index
S 1	Total Cost of Works for All Classes (BEM)
S1 (RC)	Cost of Works for Reinforced Concrete Portion
S1 (ST)	Cost of Works for Steel Portion
T1	Sum of ranks for Group 1: C&S Consultants
T2	Sum of Ranks for group 2: Others
Х	Mean of Distribution
H ₀ :µ=	Null Hypothesis
H ₁ : μ=	Alternative Hypothesis
σ	Standard Deviation
α	Confidence Level

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CHAPTER 1

INTRODUCTION

1.0 Introduction

The Civil and Structural Engineering Consultant (C&S) plays a very important role in the construction industry. Virtually all development which involved structural and infrastructural works will need C&S consultants, such as buildings, earthworks, roadwork, bridges, water supply system and virtually any structures that existed around us. The technical part of the works mainly will be to produce the design and drawings for tender and construction stage, supervise the construction works, to provide technical advice in relation to matters within their area of expertise and to provide project management advice to the client in relation to contract administration where relevant. C&S Consultants will be paid fees for the professional services rendered, termed as the professional fees. The professional fee is the financial aspect of the consultant which is used to sustain their business. C&S consultancy business involved high overhead because they need to employ professionals, semi professionals and technical staff for production of their services. Compared to other professionals in the construction industry, the fees paid to the C&S Consultants are said to be low. This research will deal into the matter

1.2 Problem Statement

The problem associated with the present situation is that the return of the services rendered by C&S Consultants which is the professional fees is relatively low compared to the scope of services and the liability that the C&S consultant has to burden. Compared to other profession in the construction industry, such as Architect, Mechanical & Electrical engineer and Quantity Surveyor, the fees are also not compatible compared to the liability. This has caused dissatisfaction amongst many C&S Consultants as to the fairness of the remuneration.

This problem has affected the C&S Consultant and has resulted in the following manner:

- Low motivation amongst consultant to produce innovative and efficient design
- Encourage consultant to use political and other necessary means to obtain projects
- (iii) Consultants will team up with strong Design and Built Contractor to produce alternative designs or propose new design as means of creating job.
- (iv) Consultant change their business to Contractor or Developer as these businesses give higher return (also higher risk)
- (v) Consultant downsize their company to maintain their overheads
- (vi) Winding up of company due to failure to survive
- (vii) Increase in non performing loans in banks

(ii) Consultant lost interest in the business

This has called for a review to the current practice for professional fees for C&S Consultant

The C&S Consultant are equally liable to the Code of Ethics established by the Board of Engineers under the Engineers Registration Act 1967 when undertaking projects. From this study it can also be ascertain whether the quantum of fees established for C&S Consultants is reasonable enough for the engineering ethics to be withheld. A simple example to illustrate this statement is that the Code of Ethics underlines that engineers should at all time take reasonable care to ensure safety of their design to the best of their ability. However at the same time, professional fees are proportional to the construction cost. Hence financially it is to the Consultant's interest to increase the cost of the works. This may sound unethical but the Consultants might argue that it's a necessity as the fee is too low.

This study also reveals the main factors contributing to the satisfaction level of the Consultant in relation to the fee structure that they obtained. It also dissects the effect the professional fee has on the engineering profession and finally explores the possible solution to overcome the situation.

1.3 Aim and Objective of Study

The objective of this study is to achieve the following

- To Investigate the different fee Structure for C&S and Architects' consultants in the construction industry
- (ii) To determine the level of satisfaction of such scale of fees among C&S Consultants
- (iii) To investigate the effect and propose improvement to the current fee structure

1.4 Scope and Limitation of the Study

The scope and limitation of this study is as follows:

- The study is only for professional fee involving Civil & Structural Engineering Consultancy in Malaysia.
- (ii) The fee only includes those of normal basic professional services. It does not include fees for additional services and fees for providing site supervisory staff as detailed in the Scale of fees Board of Engineers
- (iii) Reimbursable items are considered claimable item from the client and is not part of the fee under this study.

- (iv) The fee computation will also not consider any government service tax imposed on the Civil & Structural consultant fee.
- The data to be collected will only be limited to C&S Consultants, Architects' Consultants, M&E Consultants, Quantity Surveyors' Consultants, Developers and Contractors residing in the Klang Valley and Selangor.
- (vi) Other fee from consultancy professional services to be investigated is limited to the architects' consultants. Fee structure for other major profession such as mechanical & electrical, quantity surveyor and planner are excluded from this study.

1.5 Brief Methodology of the Study

The methodology adopted for this study collection involves literature review, interview with expert panels and questionnaire survey. The appropriate choice of methodology largely depends on the objectives to be achieved.

Various methods have been adopted for this study. The analysis for the interview engaged content analysis method. As for questionnaire survey the data were analysed using frequency analysis, average index method, relative index method and statistical test using Wilcoxon Rank Test

Fig 1.1 shows the flow chart adopted for the methodology used.

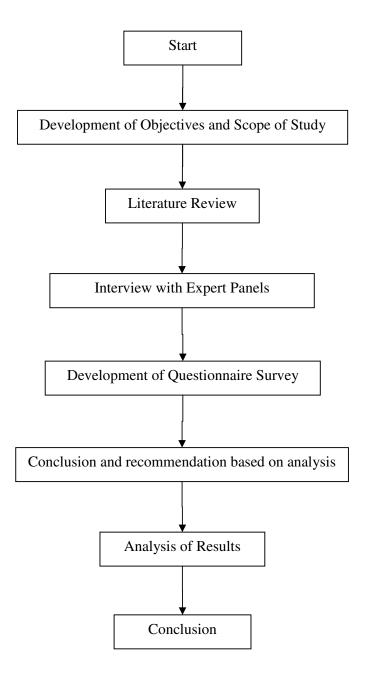


Fig 1.1 Flow Chart for Research Methodology

1.6 Summary of the Chapters

This project paper is divided into seven (7) chapters.

Chapter 1 describes the overall intention of the study. It also explains the objectives, the scope and limitation and the brief methodology adopted for the study.

Chapter 2 is a literature review on the roles and services of C&S Consultants in the construction industry. It describes how the consultancy industry began in Malaysia, the roles played by C&S consultants in the construction delivery system, typical organisation structure of C&S consultants and the financial obligation of C&S consultants to operate as a business entity.

Chapter 3 describes in detail the method of fee computation for C&S consultancy services based on Board of Engineers' Malaysia Scale of Fees

Chapter 4 describes in detail the methodologies of study to achieve the objectives. This includes methodology for data collection and data analysis for interview with expert panels and questionnaire survey.

Chapter 5 analysed the data using content analysis for expert panels and frequency analysis, average Index, relative index and statistical testing for questionnaire survey. The statistical testing used is the Wilcoxon Rank Test and hypothesis testing using Z test

Chapter 6 discussed in detail the data analysed in the previous chapter and present the findings for each of the dissatisfaction and other factors established to be the concern of the professionals in the construction industry

Chapter 7 concludes the overall study on the subject and evaluate whether the objectives of the study are met. Recommendations for further studies are also suggested.

CHAPTER 2

ROLES AND SERVICES OF CIVIL AND STRUCTURAL ENGINEERING CONSULTANTS IN THE CONSTRUCTION INDUSTRY

2.1 Introduction

The purpose of this chapter is to review on all the literatures related to C&S consultancy services in the construction industry. This includes the general understanding on the consultancy services, the demand from clients, the guidelines by the authority, the ethics of Civil and Structural engineering consultants, the ideal set up of consultancy business are and the financial commitment of C&S consultants in the running of their business. Being an organisation, some theoretical background of organisation theory is also incorporated in the literature review.

2.2 Definition of Consultants

The word "Consultant" originates from Latin word "Consultas" which means "legal expert". Various definitions of "Consultants are as follows:

- *A person who consults with another or others* (Oxford Dictionary, 2005)
- An expert who is called on for professional or technical advice or opinion (Oxford Dictionary, 2005)

"Expert" in this context means *someone who is very skilful and having much special field* (Oxford Dictionary, 2005). Therefore if a person is an expert, then he must be capable of acquiring knowledge and skill from experience.

Putting all this definitions into the C&S engineering profession, the C&S Consultants can thus be defined as *An individual or organisation comprising of professionals having expertise in Civil and Structural engineering which provides their service in the form of advice and the relevant deliverables necessary for implementation of a particular task*

In the construction industry, the "task" is the construction project and the 'deliverables" are the design input and drawings. In Malaysia, a C&S Consultant normally is set up either under the Registrar of Business (sole proprietorship or partnership) or Registrar of Companies (Private Limited Company). A consultant registered under the Registrar of companies Act are normally preferred for big projects as these companies need to have a proper paid up capital and yearly audited account

2.3 The Historical Background of Construction Consultancy Industry in Malaysia

In the past, when development is slow, projects in Malaysia are undertaken by the Public Works of Department. Public Works department being the oldest department responsible for providing public amenities and infrastructure have their own design team to carry out the necessary design. As the demand for development at that time was not high, the Public Works Department design team were able to cope with the requirement. Consultants at that time were very few in numbers and only served particularly the small private sectors.

As Malaysia progresses from under developed to a developing country, the demand for projects has risen. Time is already of essence to complete a certain project as delay means loss of money to developers. Hence the consultancy industry starts to grow to complement the required demand. Many consultants during that time were ex-Public Works Department professionals who have attained enough experience to grab opportunity in the private sector.

In the early eighties, the Public Works Department is still a major driving force in delivering development projects across the country. Only small projects are available to the consultants. All government agencies are required to realise their development projects through the Public Works Department. Towards the end of eighties and early nineties, the government then decided that other government agencies be given the mandate to implement projects themselves. A lot of Public Works Department staffs have been seconded to other agencies to implement government development programme. As these government agencies are primarily non technical bodies, they are allowed to appoint consultants subject to the approval of the Ministry of Finance. Thus this is the start of consultancy industry boom vis-à-vis Government projects in Malaysia. All Consultants desiring Government projects will need to register their company with the Ministry of Finance (or also termed the "Treasury").