THE PRACTICE OF TIME MANAGEMENT IN CONSTRUCTION PROJECTS

LOK SIEW CHIN

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

Faculty of Civil Engineering
Universiti Teknologi Malaysia

JANUARY 2014

To my beloved father and mother

ACKNOWLEDGEMENT

Firstly, I would like to thank my God for His blessings and guidance throughout conducting this study and my academic studies.

In particular, I would like to express my highest gratitude to my supervisor, En. Abdul Rahim Abdul Hamid for his patience, awesome tips for presentation, support, guidance, and also his reminders for this study. It is indeed my blessings to be able to work under such cool supervisor.

Also, not forgetting my friends who have stayed by me during these master years! Without them, I would be so lonely throughout the three semesters. To Debbie Melissa who is always cool and funny, without her, my master years are sure to be very boring and lonely! To Xiao Xu, thank you for helping in my crisis financial times and being a dear friend. To Yee Shian and Vrida, thank you both for the fun time together.

Last but not least, I am grateful to my family members for their love, care, support and daily encouragement during carrying the study. They are indeed my pillars of love, support and of course my financial aids!

ABSTRACT

The Malaysian construction industry plays a vital role in the country development. CIOB in 2008 has indicated that the quality of time-management on construction projects is generally poor. Therefore, an effective time management for the construction project is important in managing risk of delayed completion project. The aim of this project is to examine the practice of time management on construction project. The objectives of this study are to assess the respondents' participation in the planning of construction works, to investigate how progress records are kept and to identify the process of monitoring the progress of work on construction industry. To achieve these objectives, there were thirty questionnaire survey distributed to the respondents. From the findings, project manager has the highest percentage in both drafting a planning method statement and project planning meetings. Most of the respondents had their experience of sequence was planned as a result of a discussion and written method statement, the activity durations being calculated in whole or in part, the price were allocated in separate documents with contingency, date constraints were used constraint the performance to dates given in the contract documents and float constraints were used to control critically. As for the progress reports, majority prefer to keep the records on paper but were immediately input into database. Most of them had the experience of additional work relation to labour allocation. When it came to relating the resource used to the work done and in which location, it was the experience of majority respondents identified task on schedule for both labour and plant and equipment records. The respondents preferred to report the progress in meeting or correspondence and the schedules were updated monthly. Lastly, most of them have corrected the logic to conform to progress achieved to deal with consequences of out of sequence work.

ABSTRAK

Industri pembinaan Malaysia memainkan peranan penting dalam pembangunan negara. CIOB pada tahun 2008 telah menunjukkan bahawa kualiti pengurusan masa projek-projek pembinaan umumnya miskin. Oleh itu, pengurusan masa yang berkesan untuk projek pembinaan adalah penting dalam menguruskan risiko projek siap lambat. Tujuan projek ini adalah untuk mengkaji amalan pengurusan masa di projek pembinaan. Objektif kajian ini adalah untuk menilai penyertaan responden dalam perancangan kerja-kerja pembinaan, menyiasat bagaimana rekod kemajuan disimpan dan mengenal pasti proses memantau kemajuan kerja pada industri pembinaan. Untuk mencapai objektif ini , tiga puluh soal selidik telah diedarkan kepada responden. Daripada penemuan ini, pengurus projek mempunyai peratusan yang tertinggi dalam draf kenyataan kaedah perancangan dan mesyuarat perancangan projek. Kebanyakan responden mempunyai pengalaman mereka urutan telah dirancang hasil daripada perbincangan dan ditulis kenyataan kaedah , jangkamasa untuk aktiviti yang dikira secara keseluruhan atau sebahagian, harga yang telah diperuntukkan dalam dokumen berasingan dengan luar jangka , kekangan tarikh telah digunakan kekangan prestasi untuk tarikh yang diberikan dalam dokumen kontrak dan kekangan apungan telah digunakan untuk mengawal secara kritikal. Bagi laporan kemajuan , majoriti lebih suka menyimpan rekod-rekod di atas kertas tetapi segera input ke dalam pangkalan data. Kebanyakan mereka mempunyai pengalaman berhubung kerja-kerja tambahan kepada peruntukan buruh. Kebanyakan responden mengikut jadual bagi buruh dan jentera dan rekod peralatan apabila berkaitan dengan sumber yang digunakan untuk kerja-kerja yang dilakukan dan untuk lokasi tertentu. Responden lebih suka melaporkan kemajuan dalam mesyuarat atau surat-menyurat dan jadual telah dikemaskini setiap bulan. Akhir sekali , kebanyakan mereka membetulkan logik untuk menepati kemajuan dicapai untuk menangani akibat daripada kerja urutan.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

CHAPTER 1

INTRODUCTION

1.1 Introduction

Construction industry only contributed only around 3 percent to the Gross Domestic Product in the year 2010 but however it makes up an important part of the Malaysian economy due to the involvement with other industry branches such as the metals processing industry and the mechanical engineering or the tourism sector. Therefore, the construction industry is a substantial economic driver for Malaysia (ANK Malaysia, 2012). But however, construction has been facing numerous issues and one of them is time management issues which have cause delayed completion of a project. According to Westland (2006), time management is the process of recording and controlling time spent by staff on the project. According to Crutsinger (1994), time management involves determining what one should do by setting goals, deciding which events are the most important and realizing that other activities will have to be scheduled around them (prioritizing), making decisions about how much time to allow for certain tasks (time estimation), adjusting to the unexpected (problem solving), reconsidering goals and priorities on a regular basis (evaluation), and observing patterns and trends in behavior. The issues are poor management of time, choice of procurement methods, participation of shareholders, poor planning of construction works, lack of participation of scheduler and lack of implementation of

software and etc. Thus these issues can lead to delays are insidious often resulting in time overrun, cost overrun, disputes, litigation, and complete abandonment of projects (Sambasivan and Soon, 2007).

1.2 Problem Statement

A research conducted by the Chartered Industry of Building (CIOB) in 2008 has indicated that the quality of time-management on construction projects is generally poor. The research also indicates that the growth in training, education and skill levels within the industry in the use of time-management techniques has not kept pace with the technology available. In addition, there are also very few projects are currently managed by reference to modern methods of time control. Ahmed et al. (2003) found that delay happen in every construction project and the magnitude of these delays varies considerably from project to project. Some projects are only a few days behind schedule and some are delayed by over a year. Also, conflicts in shareholders are one of the factors of unsuccessful projects. El-Razek et al. (2008) identified that different parties of construction in Egyptian construction projects do not agree with each other on the importance of various factors of delay, and they mostly blaming each other of delays. He too finds that team effort is vital in the success of a project. Daniel and Mohan(2002) has discussed that only first-order approximations of duration estimates are provided by the construction time prediction models developed for the Hong Kong public housing industry. Thus, more advanced or available programming computer software such as Primavera Project Planner 2.0 and Microsoft Project 98 to be utilized in order to prepare detailed construction programmes. Liberatore et al in 2001 has mentioned that high percentage of the construction respondents used project management software for general work planning or presentation (Liberatore et al, 2001).Thus this has shown the importance of use of project management software in construction works. Also, Scott and Assadi in 1999 has stated that majority of respondents did not keep records of progress that show each of the work activities on the contractor’s programme,

exactly when work took place. The problems were lack of an organized and formalized approach, lack of clear rules and guidelines on how the records are kept and organized, difficulties in ensuring the consistency of reporting by various responsible individuals, inexperience staffs and etc (Scott and Assadi, 1999). Therefore, the importance of project control techniques in managing time to improve the risk of delayed project are needed to be known and recognize so that the risk of project delayed can be minimized.

1.3 Aim and Objectives of Study

The aim of this project is to examine the practice of time management on construction project and the objectives of this study are as follows:

i. To assess the respondents' participation in the planning of construction works
ii. To investigate how progress records are kept on construction industry
iii. To identify the process of monitoring the progress of work on construction industry

1.4 Scope of Study

The scopes of data collection in this study will focus on the aspects as follows:

i. The construction company such as contractor who involved in building and infrastructures construction.
ii. The selected construction company must be in the range of Class A till Class F for those register under Pusat Khidmat Kontractor (PKK) or Grade G1 till

G7 for those register under Construction Industry Development Board (CIDB).

iii. The selected construction company also must have their own's managerial staffs such as project managers and site manager as well as their subordinates like site supervisors, architect, quantity surveyor and administration staff excluding foreman and labours.

iv. The selected construction companies are located around the Johor and Kuala Lumpur due to the availability of good number of projects.

1.5 Significant of Study

Successful project management insures the completion of project in time, within budget, and to the project specifications. Therefore, this study is significant to investigate on how time is managed on construction industry. So that the managerial staffs can get a clear understanding on time management and they are able to prevent them early. Shareholders need to know their roles and their responsibilities. Construction works need to have a good and detail progress records to deal with future claims. This study is to let the managerial staff to know the importance of monitoring the progress of work on construction industry. Lastly, this study can become a guideline for future development in other possible areas.

1.6 Brief Methodology

The methodologies used in this study are literature search, interview with expert panels and distribution of questionnaire survey .Figure 1.1 shows the flowchart of the methodology.

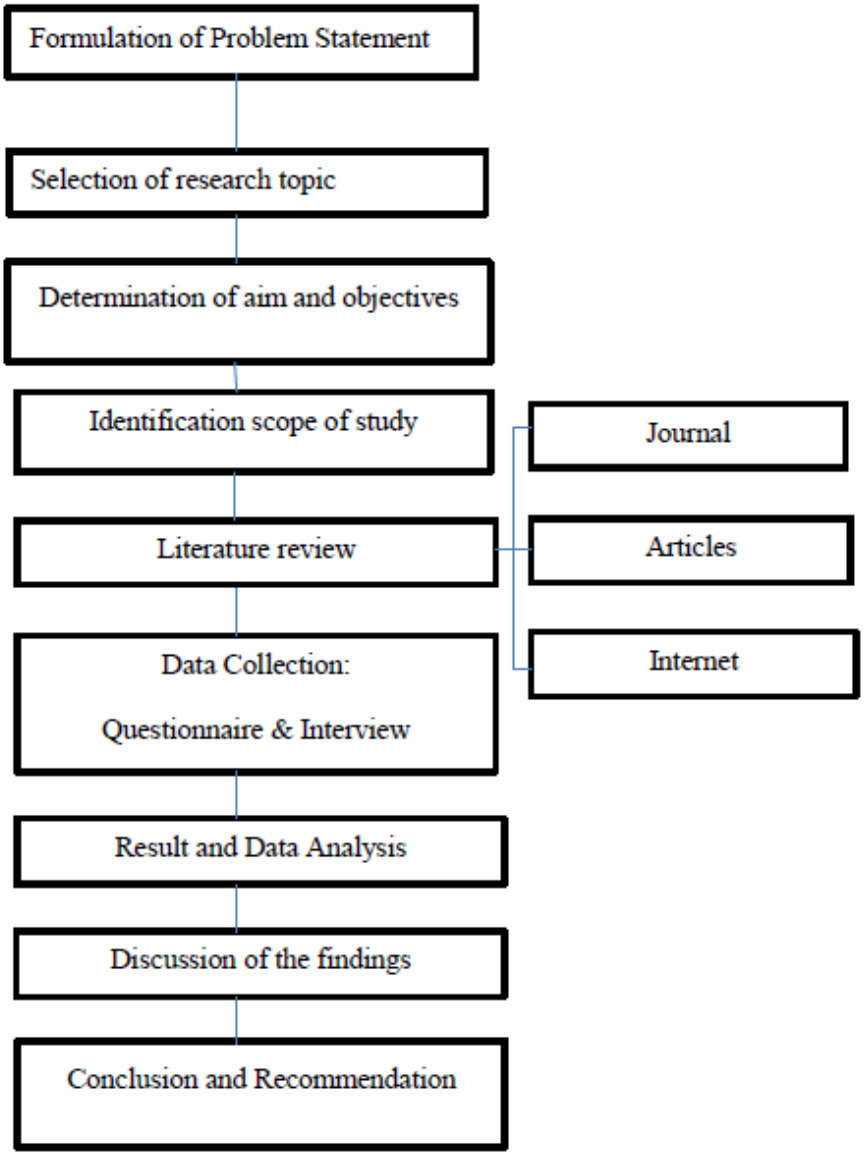

Figure 1.1: Flowchart of the methodology

1.7 Arrangement of the Report

In order to achieve the objective of the study, methodology of study is illustrated in Figure 1.1. This study has five chapters which are discussed below.

In the first chapter, problem statement is to identify by latest global demand and trending. Based on the problem statement, formation of objective, title selection and scope of the study then can be determine.

The second chapter is the literature review where this chapter has discussed all the information on time management and other information that relates to the objectives of the study from the literature or from previous researchers. The information is based on articles, journals, research paper, published books and websites.

In the third chapter which is the methodology of the study, this chapter discussed in detail how the study being conducted as well as the method of analysis used to get the results data. Data analysis of primary data collected form the respondent answered questionnaire using SPSS version 12.0, average index formula. From analyzed data, table, graph, bar chart and pie chart can be made.

Then, in the fourth chapter, data interpretation, data discussion and data comparison are based on the result that has been analysed.

Lastly, conclusion and recommendation of the study will be discussed in detail in the fifth chapter.

REFERENCES

Abdel-Wahhab, O., & Elazouni, A. (2010, May). Progress monitoring of construction projects using statistical pattern recognition. In *Construction Research Congress* (Vol. 2, pp. 1204-13).

Ahmed, S.M., Azhar, S., Kappagntula, P. and Gollapudil, D. (2003), "Delays in construction: a brief study of the Florida construction industry", Proceedings of the 39th Annual ASC

ANK Malaysia (2012). Market Watch 2012-Construction Industry in Malaysia. Available from: http://www.malaysia.ahk.de/fileadmin/ahk_malaysia/Market_reports_2012/Market_Watch_2012_-_Construction.pdf [Assessed on 6/5/2013]

Arditi, D., Pattanakitchamroon,T. (2006). Selecting a delay analysis method in resolving construction claims, International Journal of Project Management 24, 145–155.

Ashworth A (2001) *Contractual Procedures in the Construction Industry*, UNITEC, New Zealand

Australian Chambers of Commerce and Industry (2003). Government Procurement 2003, ACCI, Australia.

Bramble, B.B. and Callahan, M.T. (1992) *Construction Delay Claims*, 2nd Edn. Wiley, New York.

Chartered Industry of Building (CIOB), 2008. Managing the Risk of Delayed Completion in the 21st Century

Crutsinger, C. (1994). Thinking smarter: Skills for academic success. Carrollton, TX: Brainworks, Inc.

Daniel W.M.chan , Mohan M. Kumaraswamy. (2002) Compressing construction durations lessons learned from Hong Kong building projects. International Journal of Project Management 2023-35

El-Razek, A.M.E., Bassioni, H.A., Mobarak, A.M. (2008). Causes of delay in building construction projects in Egypt. Journal of Construction Engineering Management 134, 831–841.

Fewings, P (2005). Construction project management: An integrated approach. London: Taylor and Francis.

Gibson, K. (2000). The moral basis of stakeholder theory. Journal of Business Ethics, 26(3), 245-257.

Heesom D, Mahdjoubi L. (2002). Technology opportunities and potential volume 2: project planning software, a VIRCON project report: University of Wolverhampton.

Hegazy, T., Elbeltagi, E., & Zhang, K. (2005). Keeping better site records using intelligent bar charts. *Journal of construction engineering and management*,*131*(5), 513-521.

Ireland, V. (1985). The role of managerial actions in the cost, time and quality performance of high-rise commercial building projects. *Construction Management and Economics*, *3*(1), 59-87.

Iyer, K.C., Jha, K.N. (2005). Factors affecting cost performance: evidence from Indian construction projects. International Journal of Project Management 23, 283–295

Jergeas, G. F., & Hartman, F. T. (1994). Contractors' construction-claims avoidance. *Journal of Construction Engineering and Management*, *120*(3), 553-560.

Jordan, C., Cobb, N., & McCully, R. (1989). Clinical issues of the dual-career couple. Social Work, January, 29-32.

Kangari, R. (1995). Construction documentation in arbitration. *Journal of construction engineering and management*, *121*(2), 201-208.

Kelly, W. E. (2002). No time to worry: the relationship between worry, time structure, and time management. Personality and Individual Differences, 35, 1119-1126.

Lakein, A. (1973). *How to get control of your time and your life*. PH Wyden.

Liberatore, M. J., Pollack-Johnson, B., & Smith, C. A. (2001). Project management in construction: software use and research directions. Journal of Construction Engineering and Management, 127(2), 101-107.

Lo, T.Y., Fung, I.W.H., Tung, K.C.F. (2006). Construction delays in Hong Kong civil engineering projects. Journal of Construction Engineering Management 132, 636–649.

Mackenzie, R. A. (1972). The time trap: How to get more done in less time. New York, NY: AMACOM.

Mackenzie, R. A. (1975). New time management methods for you and your staff. Chicago, IL: The Dartnell Corporation.

Mackenzie, R. A. (1990). The time trap. New York, NY: AMACOM.

Major, W.T. and Ranson, A. (1980) *Building and Engineering Claims*, Oyez Publishing, London.

Masterman J W E (1996) – *Building Procurement Systems: An Introduction*, E & FN Spon, London

Mcgraw, B.A, Leonoudakis, R. (2009). Project Time Management: The Foundation for Effective Resource Management. Available from: http://www.rbryanpeterson.com/files/Project_Time_Management_v2_2 Feb 2009-1.pdf [Assessed on 15/04/2013]

Memon, Z. A., Majid, M. Z. A., & Mustaffar, M. (2006). A systematic approach for monitoring and evaluating the construction project progress. *The Journal of the Institution of Engineers, 67 (3)*, 26-32.

Nash, S, Chinyio, E, Gameson, R and Suresh, S (2010). The dynamism of stakeholders' power in construction projects. In: Egbu, C. (Ed) Procs 26th Annual ARCOM Conference, 6-8 September 2010, Leeds, UK, Association of Researchers in Construction Management, 471-480.

Onacken, W. Jr., & Wass, D. L. (1985). Management time: Who's got the monkey? In Winning the Race Against Time: How Successful Executives Get More Done in a Day (pp. 49-54). Boston, MA: Harvard Business Review.

PMBOK Guide (2008). Project Management Institute, Inc. Newtown Square, Pennsylvania, USA

Pogorilich, D. A. (1992). The daily report as a job management tool. *Cost Engineering*, *34*(2), 23-25.

Rashid, R. A., Taib, I. M., Ahmad, W. B. W., Nasid, M. A., Ali, W. N. W., & Zainordin, Z. M. (2006). Effect of procurement systems on the performance of construction projects. *Department of Quantity Surveying, University of Technology, Malaysia*.

Russell, A. D. (1993) Computerised daily site reporting. *Journal of Construction Engineering and Management*, ASCE, 119(2), 385± 402.

Russell, A. D. ~1995!. "Automated interpretation of job site records." *Proc., 2nd Congress on Computing in Civil Engineering*, Atlanta, 989–996.

Sambasivan, M., Soon, Y.W. (2007). Causes and effects of delays in Malaysian construction industry. International Journal of Project Management 25, 517–526.

Satyanarayana, K.N., Iyer, K.C. (1996). Evaluation of delays in Indian construction contracts. Journal of the Institution of Engineers (India) 77, 14–22.

Sawalhi, N., & Enshassi, A. (2012). Application of Project Time Management Tools and Techniques to the Construction Industry in the Gaza Strip. *Australasian Journal of Construction Economics and Building*, *5*(1), 1-8.

Schuler, R. S. (1979). Managing stress means managing time. Personnel Journal, December, 851-854.

Scott, S., & Assadi, S. (1999). A survey of the site records kept by construction supervisors. *Construction Management & Economics*, *17*(3), 375-382.

Simpson, B. G. (1978). Effective time management. Parks & Recreation, 13, (9), 61-63

Skitmore, R. M., & Marsden, D. E. (1988). Which procurement system? Towards a universal procurement selection technique. *Construction Management and Economics*, *6*(1), 71-89.

Soucie, D. (1986). Proper management of your time. CAHPER Journal, 52, (2), 36.

Turner, J.R. (2009), The Handbook of Project Based Management: Leading Strategic Change In Organization, 3rd edition, United States of America: McGraw-Hill, print.

Westland, J. (2006). The Project Management Life Cycle: A Complete Step-by-step Methodology for Initiating Planning Executing and Closing the Project. Kogan Page Limited, London, UK

Winch, G (2002) Managing construction projects. London: Blackwell Publishing.