

**FACTORS CAUSING THE POOR PERFORMANCE OF CONSTRUCTION
PROJECT**

TATIANA RINA PUSPASARI

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, 2005

**Dedicated to my beloved parents, for their everlasting support and
encouragement to complete the course of studies.**

ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my project supervisor Associate Professor Aziruddin Ressang for his effort, encouragement and guidance.

In preparing this project report, I was in contact with many industry practitioners. They have given me tips and useful information in order for me to complete the data sourcing. I am very thankful to them.

Last but not least, I am grateful to all my family members and friends.

ABSTRACT

The identification of factors causes the poor performance in construction projects are crucial in order to improve the construction project performance. Many construction projects experienced poor performance namely extensive delays and thereby exceed initial time and cost estimates. Factors addressing project characteristics, project team players role, project resources, project procurement and external environment that caused overall project delayed are identified as preventions to the project team players from making the same mistake made by the previous delayed project. The objective of this study includes identifying the factors that caused the poor performance of the construction project; to identify the severity of these factors and lastly to identify improvement factors in order to minimise the poor performance of the construction project. Comprehensive literature review have been done to gather the information on the factors that causes the poor performance of construction project from the previous researchers, followed with structure questionnaire distribution as a main tool to gain data to identify the severity of these factors. Results shows that there were forty four (44) causes factors identified where these factors were divided into eight (8) main categories that is project characteristics, client / developer related factors, contractor related factors, labour and material related factors, consultant related factors, contractual related factors, project procurement related factors and external environment related factors. From the analysis the top three factors that have the highest rank were project team leaders relationship with others, followed by communication system among project participants and the third was motivating skills of project team leader. The study also give recommendations that can be used by the project participants in order to reduce the poor performance of the construction projects in the local construction industry.

ABSTRAK

Penentuan faktor yang menyebabkan kelemahan prestasi pembinaan adalah sangat penting di dalam meningkatkan prestasi projek. Banyak projek pembinaan telah mengalami kelemahan prestasi terutamanya kelewatan serius dan menyebabkan pemanjangan masa dan pertambahan kos yang ditetapkan. Faktor berkaitan karakteristik projek, peranan pihak-pihak yang terlibat dalam projek, sumber projek, dokumen projek dan persekitaran luaran yang telah menyebabkan keseluruhan projek menyebabkan keseluruhan projek mengalami kelewatan telah dikenalpasti sebagai langkah untuk mengelakkan pihak-pihak yang terlibat dalam projek membuat kesilapan yang sama sebagaimana yang dilakukan dalam projek yang telah mengalami kelewatan. Objektif kajian ini merangkumi mengenalpastian faktor yang menyebabkan prestasi projek pembinaan; mengenalpastian tahap kritikal setiap faktor; dan mengenalpastian faktor yang boleh mengurangkan kelemahan prestasi projek pembinaan. Kajian literatur secara komprehensif telah dilakukan untuk mengumpul maklumat mengenai faktor-faktor yang menyebabkan kelemahan prestasi projek pembinaan melalui kajian sebelum ini. Seterusnya, kajian soal selidik telah dilakukan untuk mengumpul data bagi mengenalpasti tahap kritikal setiap faktor. Keputusan kajian menunjukkan terdapat 44 faktor penyebab dikenalpasti dimana faktor-faktor ini dibahagikan kepada 8 kategori utama iaitu karakteristik projek, faktor berkaitan klien / pemaju, faktor berkaitan kontraktor, faktor berkaitan konsultan, faktor berkaitan buruh dan bahan binaan, faktor berkaitan hubungan kontrak, faktor berkaitan dokumen projek dan faktor berkaitan persekitaran luaran. Dari analisis, 3 faktor teratas yang mempunyai tahap kritikal tertinggi adalah berkaitan hubungan ketua projek dengan semua pihak yang terlibat, diikuti dengan system komunikasi diantara pihak-pihak yang berkaitan dengan projek dan yang ketiga adalah skil motivasi oleh ketua projek. Kajian ini juga memberi cadangan yang boleh digunakan oleh pihak-pihak yang terlibat dalam projek untuk mengurangkan kelemahan prestasi pihak-pihak yang terlibat dalam projek untuk mengurangkan kelemahan prestasi didalam industri pembinaan tempatan.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xi
	LIST OF FIGURES	xii
	LIST OF CHARTS	xiii
	LIST OF APPENDIXES	xiv
1	INTRODUCTION	
	1.1 Introduction	1
	1.2 Problem Statement	2
	1.3 Importance of Study	4
	1.4 Aims of Study	5
	1.5 Objective of the Study	5
	1.6 Scope of Study	6

2	LITERATURE REVIEW	
2.1	Introduction	7
2.2	Performance of Construction Project	7
2.2.1	Performance Criteria	9
2.2.1.1	Providing Proper Planning and Scheduling	9
2.2.1.2	Procuring Material for Site	9
2.2.1.3	Providing Suggestions on Cost Cutting	10
2.2.1.4	Providing Safety Precautions at Construction Site	10
2.2.1.5	Subcontracting Control	11
2.2.1.6	Ensuring Efficient Administration and Supervision	11
2.2.1.7	Ensuring Availability of Required Equipments and Facilities	11
2.2.1.8	Ensuring Technical Competence and Workmanship of Construction Man power	12
2.3	Problem Start in the Project Life Cycle and Influence Its Performance.	12
2.3.1	Causes of Problem Faced in Construction	14
2.4	Common Factors Affecting the Construction Project Performance.	15
2.4.1	Project-related factors	17
2.4.2	Procurement-related factors	18
2.4.3	Project management factors	18
2.4.4	Project participants-related factors	19
2.4.5	External factors	20
2.5	Causes of Delays	21
2.6	Severity of the Factors Causes the Poor Performance of Construction Project	24
2.5	Summary	26

3	METHODOLOGY	
3.1	Introduction	27
3.2	Flow Chart of Methodology	28
3.3	Literature Review	29
3.4	Methods of Data Collection	29
	3.4.1 Primary data collection	30
	3.4.2 Secondary data collection	32
3.5	Analysis Method	33
3.6	Reporting Results	34
3.7	Summary	35
4	RESULTS AND ANALYSIS	
4.1	Introduction	37
4.2	Poor Performance Factors Causes by Project Characteristics	38
4.3	Poor Performance Factors Causes by Developer / Client	39
4.4	Poor Performance Factors Causes by Contractor	42
4.5	Poor Performance Factors Causes by Consultant	45
4.6	Poor Performance Factors Causes by Labour and Material	47
4.7	Poor Performance Factors Causes by Contractual Relationship	49
4.8	Poor Performance Factors Causes by Project Procedures	51
4.9	Poor Performance Factors Causes by External Environment	52
4.10	Improvement Factors To Reduce Poor Performance Of Construction Project	53
4.11	Summary	55

5	CONCLUSION AND RECOMMENDATION	
	5.1 Introduction	56
	5.2 Discussion of Findings	57
	5.3 Conclusion	60
	5.4 Recommendation for Future Study	68
	5.5 Summary	69
	REFERENCE	70 - 73
	APPENDIXES	74 - 81

LIST OF TABLES

TABLE NO.	TITLE	PAGE
2.1	List of causes of delay	21
2.2	Average index and ranking of delay factors	24
4.1	Analysis results for project characteristics factors	38
4.2	Analysis results for client/developer related factors	39
4.3	Analysis results for contractor related factors	42
4.4	Analysis results for consultant related factors	45
4.5	Analysis results for labour and material related factors	47
4.6	Analysis results for contractual related factors	49
4.7	Analysis results for project procedure related factors	51
4.8	Analysis results for external environment related factors	52
4.9	Improvement factors	53
5.1	Most important improvement factors	59
5.2	Factors causes the poor performance of construction project	60
5.3	Severity of the factors causes the poor performance of construction project	63

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
3.1	Methodology Chart	28

LIST OF CHARTS

CHART NO.	TITLE	PAGE
4.1	Average Index Comparison for Client Related Factors	41
4.2	Average Index Comparison for Contractor Related Factors	44
4.3	Average Index Comparison for Consultant Related Factors	46
4.4	Average Index Comparison for Labour and Material Related Factors	48
4.5	Average Index Comparison for Contractual Relationship Related Factors	50

LIST OF APPENDIXES

APPENDIX	TITLE	PAGE
A	Pilot Study Questionnaire	75
B	Survey Questionnaire	77

CHAPTER 1

INTRODUCTION

1.1 Introduction

The development in the construction industry is increasing in size, technological complexity, interdependencies and variations in demand from the client. The scope of construction industry is very wide, includes residential construction, building construction of commercial and facility building, heavy engineering construction refer to infrastructure construction and industrial construction that need specialist expertise, that contributes substantially to the economic growth of century. The life cycle of a construction project includes the basic phases of needs of project, conceptual planning and feasibility study, design and engineering, procurement and construction, handing over, operation and maintenance and disposal of facility.

It is widely accepted that a project is successful when it is finished on time, within budget, in accordance with specifications and to stakeholders' satisfaction. Unfortunately, due to many reasons, high project performance and project success are not commonplace in the construction industry, especially in developing countries. Therefore, professionals and scholars have been motivated to take extensive efforts to meet this challenge. As a result, several studies have been undertaken on factors affecting delays, cost overrun, quality, safety, productivity and problems in specific types of projects.

A research done by Stephen M. Rowlinson (1998) specified that project participants, project procedures, human aspects and environment may affect project performance. These factors may be contributed from different parties who involved in construction project, and each of them will play their individual roles in succeeding a project. The team of construction project normally forms by client, design professionals which consist of architect, civil and structural engineer, and etc, construction professionals which formed by main contractors and sub-contractors, supplier, surveyor and etc.

1.2 Problem Statement

Successful construction industry plays an important role of the country development. For the past few years, the construction industries have developed in size, complexity and high demand by client, causing construction project becoming more difficult for the project objective of time, cost and quality to be achieved. The level of success in carrying out construction and development will depend heavily on clarity of project objectives, detailed specifications of plant and a good schedule, client consultation and involvement, and effective monitoring and controlling of the project. Although there are guidelines for monitoring and controlling of construction project success, nonetheless there are construction companies facing problem in completing the project according to project goals.

Client, contractor and consultant are parties that involve in a project development. Client initiated a project development, project consultant provided professional services of designing, surveying, testing and consultation, and construction professional will build and materialize the project. A good relationship and interaction among all parties in the construction industry is crucial, in order to achieve successful project performance in any construction industry.

During the past three decades records show that delays and cost overruns are common in the construction projects. Morris et al. (1989) evaluated the records of more than 4,000 projects between 1959 and 1986 and concluded that the success rate of projects is generally poor. He further emphasized that there are very few records showing underruns. Delays have occurred in most types of projects, from simple building projects to the most complex projects. Generally, delays may be caused by: client, contractors, acts of God or a third party.

This study will emphasize on poor performance in term of extensive delay. Delay in construction could be define as the time overrun either beyond the completion date specified in a contract, or beyond the date that the parties agreed upon for delivery of a project. It is a project slipping over its planned schedule and is considered as common problem in construction projects. To the owner, delay means loss of revenue through lack of production facilities and rent-able space or a dependence on present facilities. In some cases, to the contractor, delay means higher overhead costs because of longer work period, higher material costs through inflation, and due to labour cost increase.

An unsuccessful construction project can be caused by improper closeout procedures. All contract work was not satisfactorily completed, outstanding claims were resolved, change orders were not fully negotiated and processed, extension of time reports were not approved, operations and maintenance manuals were not approve, as-built drawings not completed, and all other contract goals are not achieved. Therefore, this research can be guidance for developers/clients, consultants and contractors to avoid from bringing the construction project to a failure.

1.3 The Importance of Study

The construction industry is dynamic in nature due to the increasing uncertainties in technology, budgets, and development processes. Nowadays, projects are becoming much more complex and difficult. The project team is facing unprecedented changes. The importance of this study is considered to be a means to determine the factors that cause poor performance of construction projects and improve the effectiveness of projects. However, the concept of project success has remained ambiguously defined in the mind of the construction professionals.

The identification of factors causing the poor performance of construction projects enables appropriate allocation of limited resources. The average index method of analysis is adopted to determine the severity of each cause factor.

Some researches have been conducted to identify critical success factors affecting the success of a construction project, however, these factors are not sufficient enough to be used as reference for poor construction project performance.

1.4 Aims Of Study

This study aims to provide information to the factors that cause poor performance of construction project in local construction industry. From the factors identified, each factor will be ranked and severity of each factors could be determined. Project team players can use these factors as awareness of their action in order to achieve the project success. Recommendation also given in this study to help project team players on minimising the poor performance of construction project.

1.5 Objective Of The Study

- (i) To identify the factors that contributes to the poor performance of construction project.
- (ii) To determine the severity of these factors.
- (iii) To identify improvement on minimising poor performance of construction project.

1.6 Scope Of Study

- (i) The study covers poor construction project performance in term of extensive delayed in Selangor.
- (ii) The data collection will refers to construction team players namely consultants, main contractors and client/developers who experienced in construction project.
- (iii) Type of project involved including buildings in commercial and residential, and infrastructure work such as highways, bridges and etc.

5.5 Summary

The objectives of this study were achieved by identification of the important factors that have caused the poor performance of the construction project. Recommendations on the improvement of the problem faced were also discussed after the analysis of the findings were done. More successful projects performance can be achieved if project team players take the problem factors identified in this study seriously in their construction work.

REFERENCES

- Abd. Majid, Z.M., and Mc Caffer, R. (1997) "Assessment of Work Performance of Maintenance Contractors in Saudi Arabia" *Journal of Management in Engineering*, ASCE, Vol. 17 No. 1: 91
- Akinsola, A. O., Potts, K. F., Ndekugri, I., and Harris, F. C. (1997) "Identification And Evaluation Of Factors Influencing Variations On Building Projects." *International Journal Of Project Management*, 15~4, 263–267.
- Al-Barak A.A. (1993) "Causes of Construction Failure in Saudi Arabia." KFUPM, Dhahran, Saudi Arabia.
- Al-Ghafly M.A. (1995) "Delays in Construction of Public Utility Projects in Saudi Arabia, KFUPM, Dhahran, Saudi Arabia.
- Al-Hammad, A-Mohsen and Assaf, S. (1996) " Assessment of Work Performance of Maintenance Contractors in Saudi Arabia" *Journal of Management in Engineering*, ASCE, Vol. 16 No. 1: 44-49
- Al-Momani AH. (2000) "Construction Delay: A Quantitative Analysis." *International Journal Of Project Management*, 18(1):51-9.
- Assaf SA, al-Khalil M, al-Hazmi M. (1995) "Causes Of Delays In Large Building Construction Project." *ASCE J Mange Eng*, 11(2):45-50.

- Assaf S. A., and Al Hejji S. (2005) "Cause Of Delay In Large Construction Projects." *International Journal Of Project Management*
- Belassi, W., and Tukel, O.I. (1996) "A New Framework For Determining Critical Success/Failure Factors In Projects." *International Journal. Project Management*, 141-151.
- Chua, D.K.H., Kog, Y.C., and Loh, P.K. (1999) "Critical Success Factors For Different Project Objectives." *Journal Construction Engineering Management*, 142-150.
- Chan, A.P.C., Scott, D., Chan A.P.L. (2004) "Factors Affecting The Success Of A Construction Project." *Journal Construction Engineering Management*, 153-155.
- Chua D.K.H., Kog Y.C. and Loh P.K. (1999) "Critical Success Factors for Different Project Objectives" *Journal of Construction Engineering and Management*, May/June.
- Dissanayaka, S. M., and Kumaraswamy, M. M. (1999) "Evaluation of Factors Affecting Time And Cost Performance In Hong Kong Building Projects." *Engineering Construction. Architect Management*, 6-3!:287-298.
- Harris, F., and McCaffer, R., "Modern Construction Management." Blackwell Publishing, 2001.
- Hubbard, D. G. (1990). "Successful Utility Project Management From Lessons Learned." *Project Management Journal*, 21~3, 19-23.
- Imai, M. (1986). *Kaizen: the key to Japan's competitive success*. Random House, New York.
- Jaselkis, E.J., and Ashel, D.B. (1991)., "Optional Allocation Of Project Management Resources For Achieving Success." *J. Constr. Engrg. And Magmt., ASCE*, 117(2):321-340.

- Kaming P, Olomolaiye P, Holt G, Harris F. (1997) "Factors Influencing Construction Time And Cost Overruns On High-Rise Projects In Indonesia." *Construct Manage Econom*, 15:83 – 94.
- Kumaraswamy M, Chan D. (1998) "Contributors To Construction Delay." *Construct Manage Econom*; 16(1):17-29.
- Morris, P.W.G. and Hough, G.H. (1989). *Preconditions of Success and Failure in Major Projects*. Technical Paper, Major Project Association, Oxford.
- Noulmanee A. (1999) "International Causes of Delays in Highway Construction Projects in Thailand." www.ait.clet.com, July.
- Pocock J.B., Hyun C.T., Liu L.Y., And Kim M.K. (1996) "Relationship Between Project Interaction And Performance Indicators." *Journal Construction Engineering. And Management.*, ASCE , 122(2):165-176.
- Odeh A. M., and Battaineh H. T. (2002) "Causes of Construction Delay: Traditional Contracts." *International Journal of Project Management* 20:67-73.
- Rowlinson, S.M. (1998). *An Analysis of Factors Affecting Project Performance in Industrial Building*. Brunel University: Ph.D. Thesis.
- Sanvido, V., Grobler, F., Pariff, K., Guvents, M., And Coyle, M. (1992) "Critical Success Factors For Construction Projects." *J. Constr. Eng. Manage.*, 118~1!, 94 –111.
- Songer, A. D., And Molenaar, K. R. (1997) "Project Characteristics For Successful Public-Sector Design-Build." *J. Constr. Eng. Manage.*, 123~1, 34–40.
- Ubaid AG. (1991) "Factors Affecting Contractor Performance," Master thesis, CEM Dept., KFUPM, Dhahran, Saudi Arabia.

Walker, D. H. T. (1995). "An Investigation Into Construction Time Performance." *Construction Management Economic*, 13~3, 263-274.

Walker, D. H. T. (1997). "Construction Time Performance And Traditional Versus Nontraditional Procurement Methods." *Journal Construction Management*, 3~1, 42-55.