

REAPPRAISAL OF JKR QUALITY MANAGEMENT SYSTEM

WAN IBRAHIM BIN WAN YUSOFF

UNIVERSITI TEKNOLOGI MALAYSIA

UNIVERSITI TEKNOLOGI MALAYSIA

DECLARATION OF POSTGRADUATE CAPSTONE PROJECT REPORT AND COPYRIGHT

Author's full name : WAN IBRAHIM BIN WAN YUSOFF

Date of birth : 6 DECEMBER 1959

Title : REAPPRAISAL OF JKR QUALITY MANAGEMENT SYSTEM

Academic Session : 2010/2011

I declare that this capstone project report is classified as :

- CONFIDENTIAL** (Contains confidential information under the Official Secret Act 1972)*
- RESTRICTED** (Contains restricted information as specified by the organization where research was done)*
- OPEN ACCESS** I agree that my capstone project report to be published as online open access (full text)

I acknowledged that Universiti Teknologi Malaysia reserves the right as follows:

1. The capstone project report is the property of Universiti Teknologi Malaysia.
2. The Library of Universiti Teknologi Malaysia has the right to make copies for the purpose of research only.
3. The Library has the right to make copies of the capstone project report for academic exchange.



 SIGNATURE

591206-03-5143

 (NEW IC NO. /PASSPORT NO.)

DATE: 8 DECEMBER 2010

Certified by :


 SIGNATURE OF SUPERVISOR

ASSOC. PROF DR. MOHAMAD IBRAHIM MOHAMAD

 NAME OF SUPERVISOR

DATE: 8 DECEMBER 2010

NOTES : * If the report is CONFIDENTIAL or RESTRICTED, please attach with the letter from the organization with period and reasons for confidentiality or restriction.

“I hereby declare that I have read this capstone project report and in my opinion this report is sufficient in terms of scope and quality for the award of the degree of Master Project Management”

Signature : 

Name of Supervisor : P.M Dr. Mohamad Ibrahim Bin Mohamad

Date : 10 DECEMBER 2010

REAPPRAISAL OF JKR QUALITY MANAGEMENT SYSTEM


WAN IBRAHIM BIN WAN YUSOFF

A capstone project report submitted in partial fulfillment of the requirements for the
award of the degree of Master Project Management

Faculty of Civil Engineering
Universiti Teknologi Malaysia

DECEMBER 2010

I declare that this capstone project report entitled “Reappraisal of JKR Quality Management System” is the result of my own research except as cited in the references. The report has not been accepted by any degree and is not concurrently submitted by any candidature of any other degree.

Signature : 

Name : WAN IBRAHIM BIN WAN YUSOFF

Date : 6 December 2010

DEDICATION

To my beloved wife, son and daughters.

ACKNOWLEDGEMENT

I wish to express my sincere appreciation to my supervisor Associate Professor Dr. Mohamad Ibrahim Bin Mohamad for his effort, encouragement and guidance in conducting this study.

ABSTRACT

Quality management system (QMS) implementation has been claimed as one of the critical strategy to improve organisational performance. As a major government technical agency Jabatan Kerja Raya (JKR) has taken significant effort to implement QMS with the high expectation to ensure that all project delivered to the clients will meet or exceed their expectation. However recently there have been a lot of criticisms about the ability of JKR to fully reap the benefits of their QMS implementation. These claims seem to have some merit as evidently there are several projects delivered have experience quality problems or even failure. Therefore this study has been undertaken to reappraise the implementation of QMS in JKR. Several issues related to the problems and critical success factors for effective QMS implementation in JKR have been addressed. The methodology adopted for the study includes generating opinion from expert panel and questionnaire survey distributed to JKR personnel and its contractors and consultants. The findings from the study indicated that there is still some limitation in the level of understanding and knowledge in QMS implementation. Various factors to justify this limitation have been identified. Apart from that, the study also identified the factors that can support the development of the strategy for JKR to improve its ability to implement QMS in a more meaningful manner.

ABSTRAK

Pelaksanaan sistem pengurusan kualiti (SPK) didakwa sebagai salah satu dari strategi penting untuk mempertingkatkan prestasi organisasi. Sebagai agensi teknikal utama kerajaan, Jabatan Kerja Raya (JKR) telah mengambil langkah signifikan untuk melaksana SPK dengan harapan tinggi bagi memastikan semua projek yang diserahkan kepada pelanggan dapat memenuhi atau melebihi ekspektasi mereka. Namun baru-baru ini terdapat banyak kritikan tentang kemampuan JKR untuk meraih sepenuhnya manfaat dari pelaksanaan SPK mereka. Dakwaan tersebut nampaknya mempunyai asas kerana ternyata terdapat beberapa projek yang diserahkan mempunyai masalah kualiti atau bahkan kegagalan. Oleh itu kajian ini dijalankan untuk menilai semula pelaksanaan SPK di JKR. Beberapa isu yang berkaitan dengan masalah dan faktor kejayaan kritikal untuk keberkesanan pelaksanaan SPK di JKR telah dibincangkan. Metodologi yang digunakan bagi kajian ini termasuk menjana pendapat dari panel pakar dan kajian soal selidik yang diedarkan kepada anggota JKR serta kontraktor dan konsultan mereka. Penemuan dari kajian ini menunjukkan bahawa masih ada beberapa keterbatasan dalam tahap pemahaman dan pengetahuan tentang pelaksanaan SPK. Berbagai faktor untuk mengesahkan isu keterbatasan ini telah dikenalpasti. Selain itu, kajian ini juga telah mengenalpasti faktor yang boleh menyokong pembangunan strategi untuk JKR meningkatkan kemampuannya melaksana SPK dengan cara yang lebih bermakna.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	xii
	LIST OF FIGURES	xiii
	LIST OF APPENDICES	xiv
1	INTRODUCTION	
1.1	Introduction	1
1.2	Problem Statement	2
1.3	Aim and Objective of the Study	3
1.4	Scope and Limitation of the Study	3
1.5	Importance of the Study	4
1.6	Brief Research Methodology	4
2	LITERATURE REVIEWS	
2.1	Basic Concept of Quality	6
2.2	Quality Management System	7
2.2.1	ISO 9000 Standard-Based QMS	8
2.2.2	Total Quality Management	9

CHAPTER	TITLE	PAGE
2.2.3	Six-Sigma	10
2.3	Implementation of QMS in Construction Projects	11
2.4	Importance of QMS Implementation in Construction Projects	13
2.5	The Benefits of QMS for Construction Projects	13
2.6	Success Factor in the Implementation of QMS	14
3	IMPLEMENTATION OF QMS IN JKR	
3.1	Implementation of QMS in JKR	17
3.2	Background of Jabatan Kerja Raya	17
3.3	Construction Projects in JKR	19
3.4	Quality Issues Faced by JKR	20
3.4.1	Customer Satisfaction Index	20
3.4.2	Customer Complaints	21
3.4.3	Other Quality Measures	22
3.5	QMS in JKR Construction Projects	22
3.5.1	QMS Implementation Scope	28
3.5.2	Objective of QMS Implementation	28
3.5.3	Perceived Benefits from QMS Implementation	29
3.5.4	Effectiveness of QMS Implementation	30
4	RESEARCH METHODOLOGY	
4.1	Introduction	33
4.2	Literature Review and Document Search	33
4.3	Interview with Expert Panel	34
4.4	Questionnaire Survey	35
4.5	Method of Data Analysis	37
4.6	Validation Process	41
4.7	Conclusion	41

CHAPTER	TITLE	PAGE
5	DATA COLLECTION AND ANALYSIS	
5.1	Introduction	42
5.2	Semi-structured Interview	42
5.2.1	Content Analysis Summary	52
5.2.1.1	Current QMS Implementation Practice	52
5.2.1.2	Expectation Regarding the Implementation of QMS	55
5.2.2	Summary of Interview Result	57
5.3	Questionnaire Survey	58
5.3.1	Reliability Test (Cronbach's Alpha)	58
5.3.2	General Background of Respondents	59
5.3.3	Investigation on the Implementation of QMS	62
5.3.4	Identify Factors That Impede Successful QMS Implementation	63
5.3.5	Development of QMS Implementation Strategy	65
5.3.6	Summary of Questionnaire Survey Result	66
5.3.7	Test of Significance Different on Perception	67
5.3.7.1	Significant Different in Perception between JKR and Supplier Staffs	68
5.3.7.2	Significant Different in Perception between Different Level of Staffs	68
5.3.7.3	Significant Different in Perception between Different Level of Experience	69
5.3.8	Correlation Analysis	69
5.3.8.1	Correlation for Implementation of QMS in JKR Projects	71
5.3.8.2	Correlation for Voluntary Implementation of QMS	72
5.3.8.3	Correlation for QMS is Required to Ensure Quality	72
5.3.8.4	Correlation for NCR Root-causes Need to be Identified to Control Quality	73
5.3.8.5	Correlation for Positive Attitude towards QMS	74
5.3.8.6	Correlation for Set Up Dedicated Team to Facilitate QMS Implementation	75

CHAPTER	TITLE	PAGE
5.3.8.7	Correlation for Commitment towards the Implementation of QMS	75
5.4	Conclusion	76
6	DISCUSSION OF RESULTS	
6.1	Introduction	77
6.2	Implementation of QMS in JKR Projects	77
6.3	Voluntary Implementation of QMS	79
6.4	Appreciation of the Importance of QMS	80
6.5	Management Participation	80
6.6	Evaluation on the Effectiveness of QMS	81
6.7	Implementation Issue Escalation	82
6.8	Competency in QMS Implementation	82
6.9	Variance in Acceptance Level for Quality	83
6.10	Construction Inspection Checklists	83
6.11	Administration of Non-Conformance Report	84
6.12	Continuous Improvement Process	85
6.13	Positive Attitude Towards QMS Implementation	86
6.14	Strategy for QMS Implementation in JKR Projects	86
6.14.1	Creating Awareness of Importance	86
6.14.2	Enabling the Project Teams	87
6.14.3	Development of Implementation Strategy	88
6.15	Top Management Leadership	90
6.16	People Management	92
6.17	Education and Training	95
6.18	Process Management	98
6.19	Measurement and Feedback	101
6.20	Continuous Improvement	103
6.21	Sustainable Implementation	105
6.22	Conclusion	106

CHAPTER	TITLE	PAGE
7	CONCLUSION	
7.1	Introduction	107
7.2	Investigation on Implementation of QMS in JKR Projects	107
7.3	Factors those Impede Successful Implementation of QMS	108
7.4	QMS Implementation Strategy to Improve Quality of JKR Projects	108
7.5	Recommendation for Future Study	109
7.6	Summary	110
	REFERENCES	111
	APPENDICES	121

LIST OF TABLES

TABLE NO.	TITLE	PAGE
5.1	Content Analysis for Semi-structured Interview - Current QMS Implementation Practice	43
5.2	Content Analysis for Semi-structured Interview - Expectation Regarding QMS Implementation	49
5.3	Cronbach's Alpha Value	58
5.4	Respondents Background Analysis	59
5.5	Score Frequency for Extent of QMS Implementation	62
5.6	Ranking of Extent of Practice Compared to Best Practice	63
5.7	Score Frequency for Level of Practice Compared to Critical Success Factors	64
5.8	Ranking for Level of Practice Compared to Critical Success Factors	65
5.9	Score Frequency for QMS Implementation Strategy	66
5.10	Correlation for Variables Related to Areas Examined	70

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
1.1	Research Methodology	3
3.1	Operating Principles of JKR QMS	23
3.2	JKR QMS Documents Structure	23
3.3	Typical Process Map Used in JKR QMS	26
3.4	JKR QMS Organisation Structure	27
5.1	Histogram of Respondents' Background According to Organisation	60
5.2	Breakdown of Respondents by Position	86
5.3	Breakdown of Respondents by Experience	86
6.1	QMS Implementation Strategy for JKR	89

LIST OF APPENDICES

APPENDIX NO.	TITLE	PAGE
A	Semi-structured Interview Questionnaire	122
B	Survey Questionnaire	
B-1	Survey Questionnaire (English Version)	126
B-2	Survey Questionnaire (Malay Version)	129
C	Statistical Test Results	
C-1	Mann-Whitney U Test (JKR/Supplier)	133
C-2	Kruskal-Wallis Test (Different Level of Staff)	138
C-3	Kruskal-Wallis Test (Different Level of Experience)	142
C-4	Variables Correlation Analysis	146

CHAPTER 1

INTRODUCTION

1.1 Introduction

In a competitive market, organisations need to manage quality of their products or services to ensure that they delivering value to their customers and in the process gain competitive advantages. While competition is the driving force in private sector, the concept of competition does not exist in public sector. Thus competition is rarely a driving force for public sector to improve the quality of its product or services. As such, implementation of management system to improve quality may not get the full support and commitment from the managements and the staffs.

In order to improve the quality of service of public sector, Malaysian Government had introduced various programs for implementation by its departments and agencies. Since 1991, various guidelines were developed to help the departments and agencies in the implementation of the programs. The programs include service counter quality, administration of public complaints, benchmarking, total quality management (TQM), and other various programs (MAMPU, 2010). In July 1996, the Secretary to the Malaysian Government had launched the Guideline for the Implementation of MS ISO 9000 in the Civil Service (MAMPU, 1996). With the introduction of the guideline, it was anticipated that it would help the Malaysian public sector in developing a more effective quality management system (QMS).

Jabatan Kerja Raya (JKR) is one of the public organisations that had obtained the ISO 9000 certification. As the main technical arm of the Government, JKR is responsible for implementation of government development projects (construction), management of public assets and providing engineering services to government agencies.

1.2 Problem Statement

JKR has obtained the MS ISO 9000 certification since June 2000. However, there appears to be a substantial gap between the expected benefits of ISO 9000 certification and what actually have been achieved. Some of the expected benefits are quality improvement and customer satisfaction (Curkovic and Pagell, 1999). The quality of products and services delivered to the clients by JKR are perceived as far from meeting the clients' expectation and satisfaction. Record shows that 78% of building projects and 100% of road projects completed in the year 2009 failed to achieve acceptance criteria set by JKR's Asset and Facility Management Division. Customer satisfaction survey done by JKR for year 2009 shows that 96% of JKR clients who participated in the survey gave rating exceeding the JKR target line of 4.9 on 7-point Likert Scale. However the targeted 4.9 level out of 7 should be questionable. A level of 6 .0 out of 7.0 should be used instead. Study by Abdull Rahim (2009) also indicated that JKR clients were dissatisfied with its services.

It was perceived that there was lack of commitment from top management, and the workforce, to implement QMS as a tool for quality. It seem that they complaint about the system being too much paperwork-driven and did little to help the department in delivering quality products and services. A lot of time was spent on preparing quality records at the expense of quality control activities.

The problems highlighted warrant for this study to be undertaken. Furthermore, to date only limited study has been carried out in the area of ISO 9000-based QMS implementation in construction industry, particularly in Malaysia.

1.3 Aim and Objective of the Study

The aim of this study is to reappraise the implementation of JKR Quality Management System in order to effectively improve the quality of projects and services delivered by JKR.

To achieve this aim, the following objectives have been used:

- To investigate the implementation of QMS in JKR projects.
- To identify the factors those impede successful implementation of QMS in JKR projects.
- To propose the strategy to improve QMS implementation in JKR.

1.4 Scope and Limitation of the Study

JKR has documented the procedures for product realisation, from inception to completion stage. However due to time constraints, the scope of the study will be limited as follows only:

- Implementation of QMS during construction phase
- Quality management at project sites

Nevertheless the findings of the study and any proposal made can also be applied to other stages of product realisation with some modification or adaptation.

1.5 Importance of the Study

This study can be considered as significant in contributing to a deeper understanding of ISO 9000-based QMS, particularly with regard to successful implementation in the public sector construction projects. It is anticipated that the findings of the study will help JKR implementing QMS more effectively and contribute to JKR mission to become a world class service provider and centre of excellence in asset management, project management and engineering services. Finally, successful QMS implementation in JKR projects would contribute towards JKR's vision to be the centre of excellence in asset management, project management and engineering services.

1.6 Brief Research Methodology

This study utilised a qualitative methodology. Data were collected through reviews of archival records, expert panel interviews and questionnaire survey. Expert panel interviews were conducted using semi-structured approach.

Expert panel interviews were conducted to determine the current QMS practice in JKR projects, to identify implementation problems, and evaluate panel's expectation regarding QMS implementation. Secondary data was also collected from JKR Quality Management Section for the purpose of determining the current application or practice of QMS. The current practices were compared against best practices derived from literature reviews. Questionnaire survey was conducted to get feedback from both JKR and supplier (contractor and consultant) staffs regarding QMS practices and the strategy to improve QMS implementation. Figure 1.1 illustrates the research methodology.

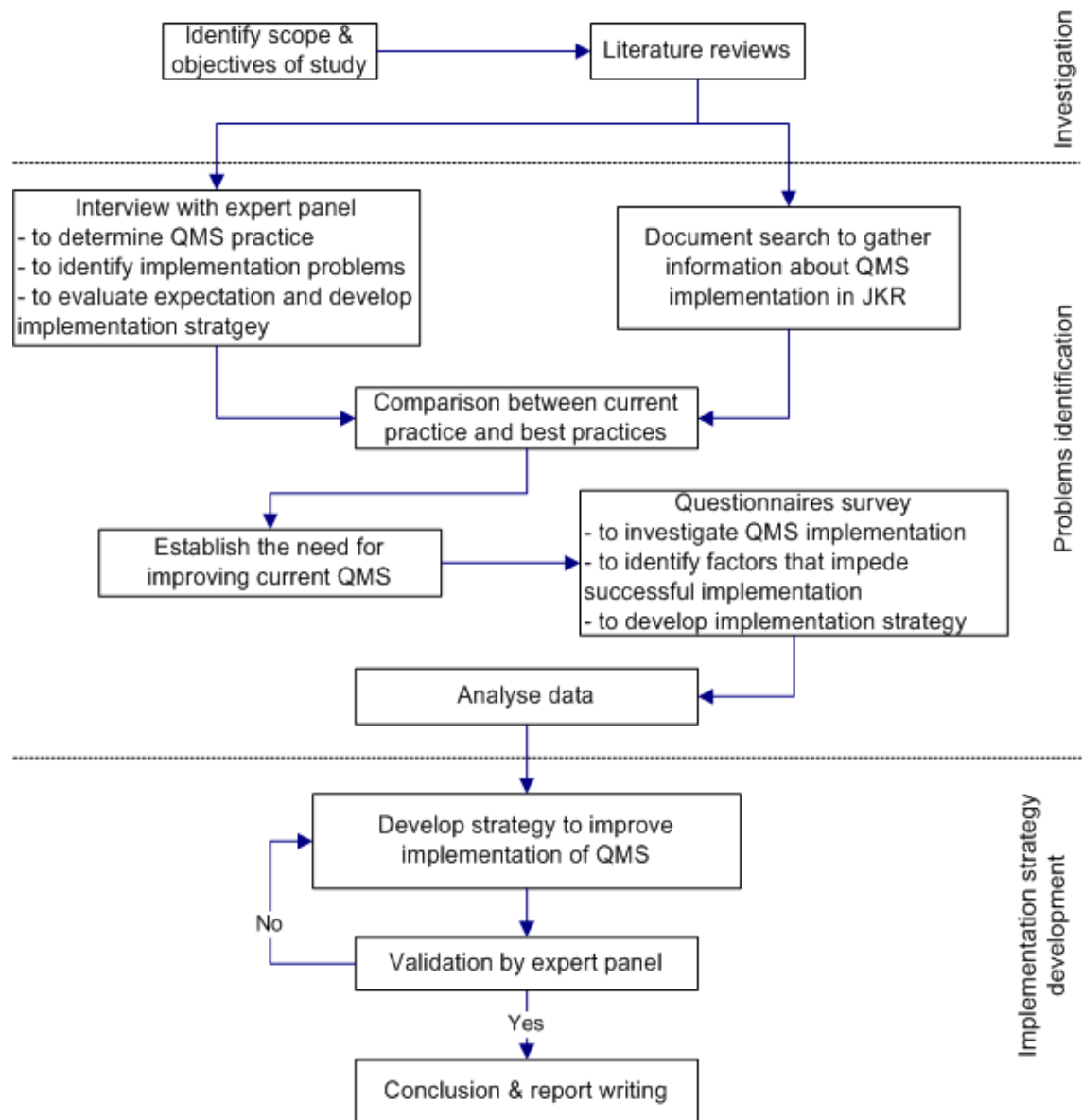


Figure 1.1: Research Methodology