

UNIVERSITI TEKNOLOGI MALAYSIA

BORANG PENGESAHAN STATUS TESIS^u

JUDUL: **THE EFFECTIVENESS OF CONSTRUCTION EQUIPMENT
WRITE-OFF POLICY IN THE ROYAL ENGINEER REGIMENT
(RER)**

SESI PENGAJIAN: **2006/2007**

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THE EFFECTIVENESS OF CONSTRUCTION EQUIPMENT WRITE-OFF POLICY
IN THE ROYAL ENGINEER REGIMENT (RER)

CHAN CHEE SIN

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

Faculty of Civil Engineering
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MAY, 2007

I declare that this project paper entitled “*The Effectiveness of Construction Equipment Write-Off Policy In The Royal Engineer Regiment (RER)*” is the result of my own research except as cited in the references. The project paper has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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Date : 11 May 2007

Dedicated to my loving wife, my new born son,
my supportive parents and my loving sisters,
thank you for making this possible
and your never ending love, care, understanding and support

ACKNOWLEDGEMENT

First and foremost, I would like to say without the people I was in contact throughout my research, I wouldn't be writing this at the first place. They have given me the opportunity to share their knowledge and experience, their effort contributed to the completion of this research. And to my research supervisor, Ir. Dr. Rosli Mohamad Zin, I appreciate his time, commitment, guidance and most importantly his friendship.

My fellow course mate whom I met when I joined this course, thank you for being a friend and may we can still be in touch. To all my lecturers during this course, I will remember everything that was poured on us, your knowledge and experience have revolutionize my mindset in studies and my career.

Last but most importantly, to my family especially my wife who have been there for me every time I needed her, I am grateful for God has given her to me. At last I will be graduating and there won't be any busy weekends with studies.

ABSTRACT

Construction equipment is an essential part of a construction organization. Owning construction equipment not only reduces man power on site but it multiplies the productivity and efficiency of the organization. Each construction organization applies different construction equipment management policy to increase the productivity and maintain the efficiency of the equipment. The aim of this research is to study the effectiveness of the current write-off policy applied by the Malaysia Army Royal Engineer Regiment (RER) in managing its fleet of construction equipment. Initially, the studies and comparison of plant management policy in the RER, Public Work Department (PWD) and private sector through documents studies and interview showed that the RER and PWD have a strict guidelines and policy on write-off of equipment whereas the private construction companies normally adopt a more flexible decision through intuition and experience. Later, from case study of construction project handled by the RER in Iskandar Camp, Gemas, Negeri Sembilan; evidence of impacts in using old construction equipment in a project such as low operation hour, higher maintenance costs and overall project delay was obtained from documents studies and observation. Finally the proposal of improvement to the current write-off policy in the RER was achieved from a series of meetings and discussions with panel of expert from RER Directorates, Ministry of Defense. It is about time that an improvement to the system be introduced to deal with the problems of old construction equipment in the RER.

ABSTRAK

Jentera pembinaan adalah sumber penting di dalam sesebuah syarikat pembinaan. Pemilikan jentera pembinaan bukan sahaja mengurangkan penggunaan sumber manusia di tapak malahan menggandakan tahap produktiviti dan kemampuan sesebuah syarikat. Setiap syarikat mempunyai pendekatan yang berbeza dalam pengurusan jentera pembinaan bagi memastikan tahap produktiviti dan kecekapan dapat dikekalkan. Tujuan penyelidikan ini adalah untuk mengkaji tahap kesesuaian dan keberkesanan polisi pelupusan jentera sebagai sebahagian dari sistem pengurusan jentera pembinaan di dalam Rejimen Askar Jurutera DiRaja (RAJD). Pada keseluruhannya kajian terhadap polisi di dalam RAJD, Jabatan Kerja Raya (JKR) dan sektor awam melalui kajian dokumen dan temuduga telah menunjukkan bahawa RAJD dan JKR memiliki satu sistem yang komprehensif sementara amalan di dalam sektor awam lebih fleksibel berdasarkan kepada pengalaman dan operasi syarikat. Kemudian, satu kajian kes telah dilaksanakan ke atas projek RAJD di Kem Iskandar, Gemas, Negeri Sembilan yang telah membuktikan kelemahan penggunaan jentera-jentera yang lama di dalam projek pembinaan seperti masa operasi yang tidak menentu dan lebih rendah, peningkatan kos senggaraan dan kelengahan tempoh siap projek. Akhir sekali, cadangan peningkatan kepada polisi pelupusan jentera telah dirumus dan dibentangkan melalui beberapa perjumpaan dan perbincangan dengan panel pengguna yang terdiri daripada pakar-pakar pengurusan jentera pembinaan di dalam RAJD. Cadangan peningkatan ini tepat pada masanya dan diharapkan dalam merintis jalan ke arah peningkatan keupayaan pasukan RAJD dalam projek pembinaan pada masa hadapan.

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LIST OF ABBREVIATIONS

RER	- Royal Engineer Regiment
Sqn	- squadron
PWD	- Public Work Department

CHAPTER 1

INTRODUCTION

1.1 Background

The Royal Engineer Regiment of the Malaysian Army was formed in 22 April 1953 as part of the Malaya Army. It is a combat support arm and its primary role is to assist the Army to fight, move and live. There is normally an engineer officer at all levels of commands to advise the commander on the field engineering requirements for any battle situation and to put this work into effect. In any case, an engineer operation involves men, materials, money, transport, tools and time (Headquarters of Army, 1986).

In short, the Royal Engineer Regiment roles are as follows:

- a. In War. Assist the Army to fight, move and live.
- b. In Peace. Assist in the development of Malaysia.

- c. In Time of Civil Unrest and Disaster. Aid the civil power in the maintenance of public order and assist in the operation, rehabilitation and maintenance of essential services.

Apart from trained soldiers, construction plants are an essential in ensuring the effectiveness of the Royal Engineer Regiment in taking on civil projects for the government in peace time. Construction plants are the means to speed up construction works and reducing the use of manpower. Without an effective set of construction plants and equipments and sound management, the Royal Engineer Regiment is incapable to undertake the ever demanding construction projects nowadays.

Of late, the effectiveness of plants in the Royal Engineer Regiment has been an issue. The ageing fleets of construction plants and equipments will be the main concern of the Royal Engineer Regiment Construction Plant Department in the RMK-9 (Seminar Rejimen Askar Jurutera Diraja, Taiping, September 2005). However the Ministry of Defense has times and times again overlooked this problem, but the grievances from the end user whom is the Royal Engineer Regiment continue to echo throughout the country.

The incapability of replacing these older plants and equipments has been the culprit of projects delays and increase costs. An old excavator for example needs extra maintenance and its degraded capabilities affect its productivity.

Now, let us put on our thinking cap and examine the situation to find out what really causes this problem. Is the ageing construction plant no longer efficient and should be decommissioned and replaced? Or is it because the lack of proper construction plants management system in the Royal Engineer Regiment? Or the problem is just not as serious as it seems?

Whatever the reasons may be, the Royal Engineer Regiment, who at once can stand arms and shoulders above even the Public Work Department (PWD) deserved the

attention to rectify the problems with its construction plants and equipments. A proper management and investment decisions will be vital to address the issue and corrective measures can be taken.

1.2 Objectives of Research

The objectives of this research are:

- a. To study construction plants write-off policy in the Army, Public Work Department and the private sector.
- b. To identify the impact of using old construction plants on time and costs.
- c. To propose improvement on the Royal Engineer Regiment current construction plant write-off policy.

1.3 Problem Statement

From this research, the author would like to highlight the problem related to the ageing construction plants in the Royal Engineer Regiment which has long posed a problem to attain the regiment capabilities in a highly dynamic and complex environment. The decreased on effectiveness of the fleets directly affected the Royal Engineer Regiment productivity in construction projects causing unnecessary delays and hiccups. The cost of maintaining this ageing fleets also sky-rocketed and far exceeds expenses to finance new constructions plants. Therefore, it is to utmost importance that the Malaysia Army starts to gradually replacing this ageing construction plants.

1.4 Scope of the Study

This research only focused on earth works construction plants in the Royal Engineer Regiment. Hence, the outcome of this research cannot represent the situation of all construction plants in the Royal Engineer Regiment.

On the other hand, the limitation of time frame of the research may have weakness. The case study will only concentrate to study the difference in hourly operation, total maintenance cost for certain duration of time and the total progress of the project. Other factors are not discussed and study is done based on documents studies only. The human factors and variables in studying the productivity may be different on other construction sites.

CHAPTER 2

METHODOLOGY

2.1 Introduction

In the evaluation of the issue, the following steps had been carried out:

a. To study and compare construction plants write-off policy of the following agencies:

- (1) Royal Engineer Regiment (RER).
- (2) Public Work Department (PWD).
- (3) Private construction company.

- MTD Capital Sdn. Bhd.,
- Jaya Haricon Construction Sdn. Bhd., and
- Satria Desa Corporation Sdn. Bhd.

Documents studies are main source of method to study and compare the construction plants write-off policy in these agencies. Apart from that, interview

and analysis helps enormously in fulfilling this area of concern. Experience managers and policy makers are most suitable candidates that were chosen to assist in the studies of policy in the respective agencies.

b. Case Study – Proposed Garage for 4 Sqn RER (Bridging) in Iskandar Camp, Gemas, Negeri Sembilan.

The project was launched in the September 2006 and handled by 92 Park Sqn Royal Engineer Regiment. The initial cost budgeted for the construction is RM 1.1 million. The estimate is based on the site investigation and preliminary design done by the Accommodation and Work Department, Ministry of Defense. The site for the proposed garage is of secondary jungle and a 130-foot hill which makes it a suitable site to study the impacts assessments of using the current sets of construction plants in the Royal Engineer Regiment. It has up to now involve a handful of Royal Engineer Regiment construction equipment and the case study has been able to identify the impacts and weaknesses of using old construction equipment in a construction projects.

The area of concern during the case study analysis is only on maintenance cost, hourly operation and overall progress of the project. The benefit or weaknesses are identified and used as a basis to establish the problem of operating old construction equipment.

c. Structured interview with expert and specialized personnel in the army and the industry to identify the factors to be considered in valuating the effectiveness of a construction plant. The interview has helps in identifying critical factors in considering the lifespan of a construction plant and decision making process. The interview had been very successful as it produced a schematic analysis that has help improve the current system of write-off policy. The expert involved is as follows:

- Brigadier General Ir. Abdul Nasser bin Ahmad,
- Lt Kol Ir Chapiti bin Redzwan,
- Lt Kol Zainal Abidin bin Hj Ramlee; and
- Mej Hj Ishak bin Ripin

In total the interview involved four series of meeting, discussion and comments that have produced a merit scheme. The meeting is as follows:

- First meeting: 12 Jan 2007
 - Identification of problem statement
 - Proposal and outline steps of action
- Second meeting: 24 Jan 2007
 - Presentation on case study findings
 - Identifying critical factors
- Third meeting: 1 March 2007
 - Proposal on merit scheme
 - Comments and discussion
- Fourth meeting: 29 March 2007
 - Final presentation
 - Refining scheme

The interview was greeted with great support from the top management of the Royal Engineer Engineer Directorates. The forum of meeting also was willing to share and comments the scheme produced and proposed. Although the work done is only preliminary, the interview series will help identify and propose a new system to replace the current merit system and write-off policy to overcome the weaknesses of the current system and policy.

The interview has been a great success as it has produce a merit scheme and will be utilized to identified uneconomical and unproductive construction equipments that are still in service in the Royal Engineer Regiment. The future plan is to integrate the merit scheme into the SisKJC (Sistem Kenderaan Jenis C) system. SisKJC is the main operating system introduced in 2006 that overtook the conventional system of construction equipment management and maintenance in the Malaysia Army especially the Royal Engineer Regiment.

- d. Figure 2.1 shows the flow chart of the methodology during the research process.

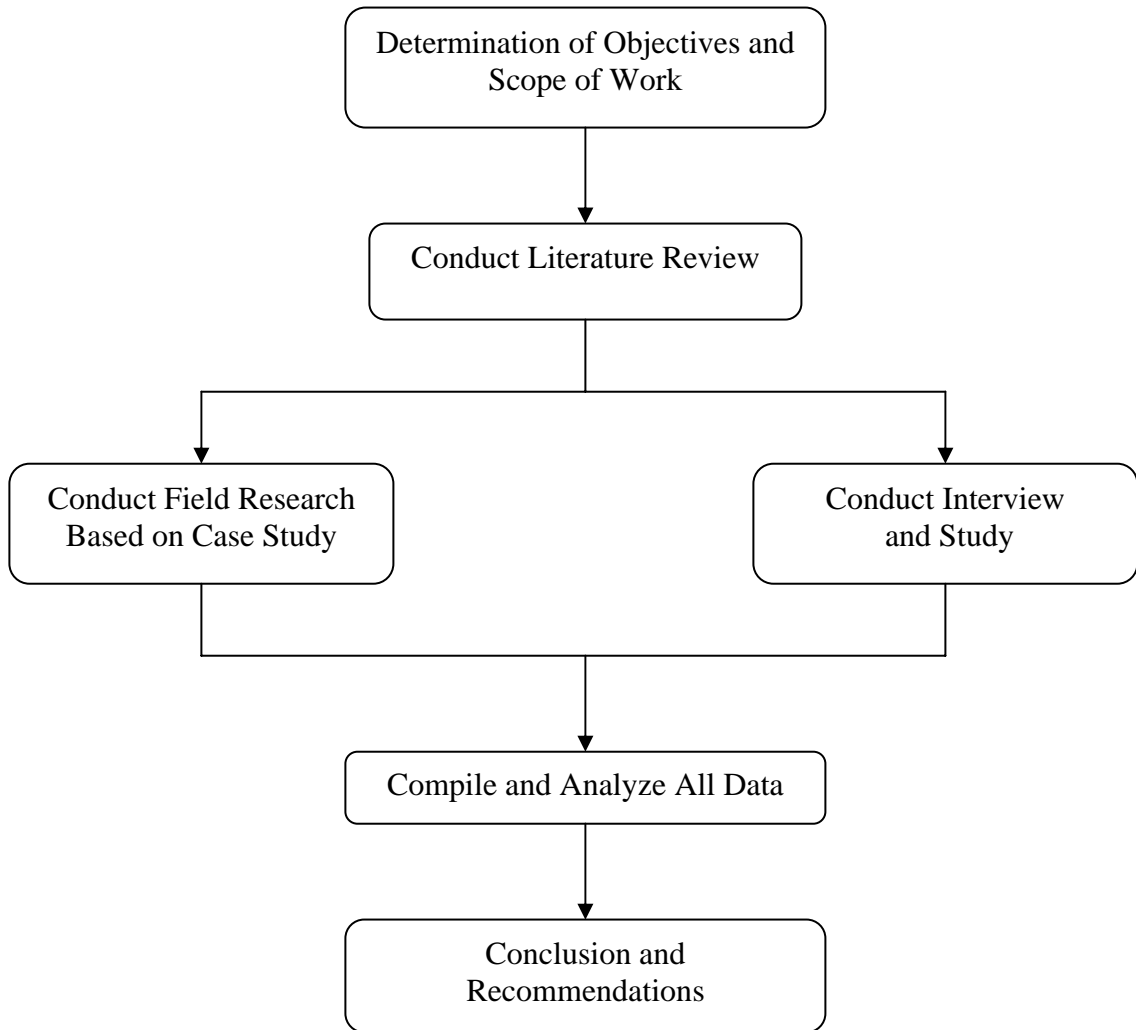


Figure 2.1 Research Methodology

CHAPTER 3

OWNING A CONSTRUCTION EQUIPMENT

3.1 General

A general issue that frequently confronts a contractor as he plans to execute a project is the selection of the most suitable equipment. A contractor must consider the money spent for equipment as an investment which he can expect to recover with a profit during the useful life of the equipment. A contractor does not pay for construction equipment he purchased but in reality, the equipment must pay for itself by earning for the contractor more money than the equipment cost. Unless it can be established or forecasted that the equipment will produce more than the cost of owning, it should not be purchased.

Peurifoy (1979) suggests that a contractor can never afford to own a fleet of all types/sizes of equipment. Therefore, it is only possible for a contractor to determine the kind of equipment that is suitable for certain works or projects. But nevertheless, this is not the only criteria in deciding of owning a machine. Maybe the project under consideration is not large enough to justify the cost of owning the equipment because the cost cannot be recovered at the completion of the project.