

**METHODS TO OVERCOME THE EFFECTS OF FLUCTUATION IN
CEMENT PRICES TO LOCAL CONTRACTOR**

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ABSTRACT

Construction sector is one of the largest economy sectors that contributed to the development and prosperous of Malaysia. Cement is a major and essential component of the construction industry in Malaysia. On the average, cement and cement-related products such as cement sand bricks, plasters, concrete roof tiles, reinforced concrete piles, concrete culvert and others comprise fifty percent (50%) of the material used in a project. This study is about the methods to overcome the effects of fluctuation in cement prices to local contractor. The selected respondents on this study are contractors, engineers and suppliers in Johor Bahru and Kuala Lumpur. Covering cases were from year 2005 to 2010. All data were analyzed using Microsoft Excel 2003. The result indicated that there are five (5) methods to overcome the effects of fluctuation in cement prices to local contractor which is introduce more flexible contracting management to accommodate price changes is the most chosen among the respondents.

ABSTRAK

Sektor pembinaan merupakan salah sebuah sektor yang banyak menyumbang ke arah kemajuan dan pembangunan Malaysia. Simen merupakan bahan binaan yang utama dan penting di dalam industri pembinaan Malaysia. Secara puratanya, simen dan produk simen, bata pasir simen, plaster, atap genting, cerucuk konkrit bertetulang, parit konkrit dan lain-lain terdiri daripada 50 peratus (%) bahan yang digunakan di dalam sebuah projek. Oleh itu, kajian ini adalah tentang kaedah untuk mengatasi kesan naik turun harga simen kepada kontraktor tempatan. Fokus kajian ini meliputi responden-responden daripada kontraktor, jurutera dan pembekal yang berada di kawasan Johor Bahru dan Kuala Lumpur. Masa kajian yang diambil adalah dari tahun 2005 sehingga 2010. Data-data yang diperolehi dianalisis menggunakan *Microsoft Excel 2003*. Hasil daripada kajian ini menggariskan lima (5) kaedah untuk mengatasi kesan naik turun harga simen kepada kontraktor tempatan di mana pengenalan kepada pengurusan kontrak yang lebih teratur merupakan pilihan bagi kebanyakan responden.

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LIST OF ABBREVIATIONS

NO.	TITLE	PAGE
1	Average Index (Al-Hammad formula)	42

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Cement has become the main material used in construction industry. Cement consumes fifty five percent (55%) of overall concrete cost and more than fifty percent (50%) of the material construction used in the world is cement. Cement and cement-related products such as plasters, drainage, concrete culverts, comprise fifty percent (50%) of the material used in a project (Department of Statistics Malaysia, 2008).

Malaysia produces cement twenty (20) million tones per year and do not import cement from other country since we do have our own cement plant in Malaysia. In Malaysia economic growth, cement is considered as government controlled price and it is controlled under Ministry of Domestic Trade and Consumer Affairs (KPDN) but it has been abolished since 5th June 2008. Since

then, the cement prices started to escalate which is 23.3% at Peninsular Malaysia, whereas Sabah (6.5%) and Sarawak (5.2%). The other material price that has been abolished is steel which also showed an increase in selling price (Ministry of Domestic Trade and Consumer Affairs). The liberalisation of cement has created an immediate price increase about twenty two percent (22%). (The Star Online, 2009).

The global demand for cement has been growing at an average five percent (5%) annually for the past 25 years until 2007 with strong growth in emerging markets and more limited growth in developed countries (Bruno Lafont, 2009).

Due to the liberalisation of the sector on 5th June 2008, there have been two (2) rounds of price hikes for cement by fifteen percent (15%) to twenty percent (20%) in June and about eight percent (8%) in August the same year due to an unprecedented sixty three percent (63%) hike in diesel price and twenty six percent (26%) rise in electricity tariffs respectively (The Star Online, 2009).

Further to this, electricity tariffs that rose by up to eighteen percent (18%) in year 2008 for households and an average twenty six percent (26%) for some commercial and industry users also affect the manufacturing process of cement. (Bernama. com, 2008). The industry was hard hit by the hike as it is a major user of energy and a five percent (5%) reduction is not much since cement is the largest energy-consuming commodity in the building material classification (The Star Online, 2009). Cement production accounts for two percent (2%) of world primary energy consumption and up to six percent (6%) of total energy consumption in cement producing countries (Malaysia Industrial Energy Efficiency Improvement Project, 2009). However, in September 2009, the manufacturing of cement has been decreased to 10.9% due to the effects of the

decline in sales value by 74 industries (63.8%) of the 116 industries covered in the survey (Department of Statistics Malaysia, 2009).

This material price escalation issues are normal phenomena for all economic sectors. This material cannot be replaced with other materials and the shortage will influence the production phase. Therefore, it is important for all parties involved either direct or indirect to play their role in ensuring the price of cement is always at a reasonable price due to the abolished price of cement.

As shown in Figure 1.1, year 2008 shows a drastic escalation of prices. In June 2008, the industry was finding it hard to manage the business of construction in the face of drastic cost increase in energy and essential building materials. June, 2008 saw a drastic rise in the cost of many building materials as a result of the increase in the price of fuel announced by the government on June 5. The average price of ready mixed concrete increased by twenty nine percent (29%), cement by twenty three percent (23%) and clay brick by thirteen percent (13%) compared to May 2008 for Peninsular Malaysia (Department of Statistics Malaysia, 2008).

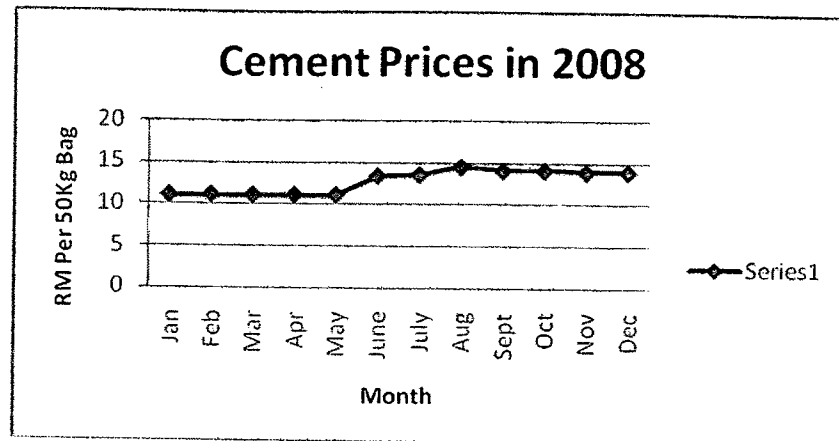


Figure 1.1: Cement Prices in Year 2008
(Source: Department of Statistics, Malaysia)

While as shown in Figure 1.2, it is observed that 2009 started on a positive note with construction material prices stabilizing as a direct result of the stable price of fuel and the rate of reduction in the prices of construction materials was much lower compared to their rate of increase in 2008 (Department of Statistics Malaysia, 2008).

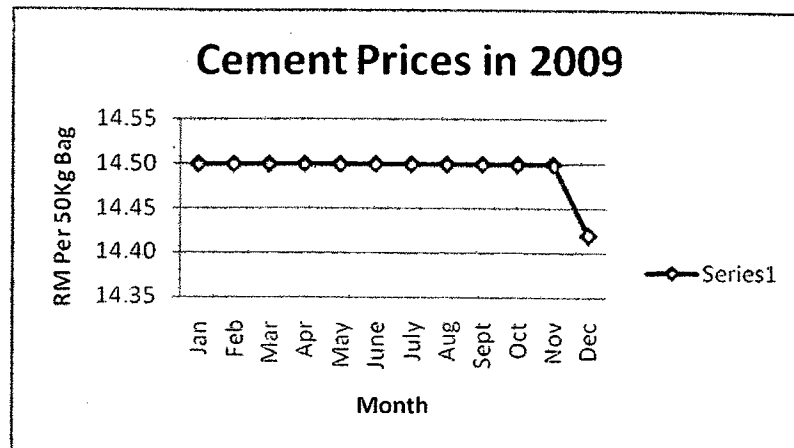


Figure 1.2: Cement Prices in Year 2009
(Source: Department of Statistics, Malaysia)

1.2 Problem Statement

Cement is a major and essential component for the country's construction industry. The country consumption of cement total 19.5 million metric tonnes in 2006 and the consumption is expected to increase due to developments under the 9th Malaysia Plan (9MP). The need for price stability and reliable supply of building materials to the construction sector cannot be underemphasized (Master Builders Association Malaysia, MBAM).

Cement price had not risen from 1995 to late 2006. In December 2006, it rose only ten percent (10%) although production costs had risen by thirty one (31%). Since then, its price had gone up twice, fifteen percent (15%) to twenty percent (20%) in June and about eight percent (8%) in August 2008. The

increases were due to an unprecedented sixty three percent (63%) hike in diesel price and twenty six percent (26%) rise in electricity tariffs (Grace Okuda, 2009).

The five percent (5%) electricity tariff reduction effective 1st March 2009 will not be enough to reduce the cost of production for the industry (The Star online, 2009).

With the increase in fuel price, many transporters are reluctant to carry cement as cargo as they are low value, bulky items. Otherwise they will try to overload the lorries. There is also a lack of lorries, drivers and licences (Tan Sri A. Razak Ramli, 2008).

1.3 Objective

The aim of this study is to identify the effects of raise and descent of cement prices to the local contractors. There are three (3) objectives of this study, as follows:

- i) To identify factors that affect cement prices.
- ii) To identify effects of fluctuation in cement prices to the contractors.
- iii) To suggest methods to overcome the effects of fluctuations in cement prices to local contractor.

1.4 Scope of Study

This study will be conducted in the area of Johor Bahru and Kuala Lumpur. The area of study will cover in southern of Johor because Johor Bahru is the third largest and one of the most developed states in Peninsular Malaysia and has more numbers of project sites. The respondents consist of contractor and engineer since they are the parties that involved and understand very well about the uncertainties of cement prices.

This study will focus on the contractor's point of view because they are the parties who are badly affected if the uncertainties of cement prices occur. This study is focusing on the main material used in construction industry that is cement (Ordinary Portland Cement) which consist fifty percent (50%) of the material used in construction. This study will also focus on the changes of cement prices from year 2005 until 2009. Cement price had not risen from 1995 to late 2006 but it started to escalate in the middle of 2008 due to the ceiling price cancellation. Information and data attained are based on literature reviews, interviews, and questionnaires survey.

1.5 Methodology

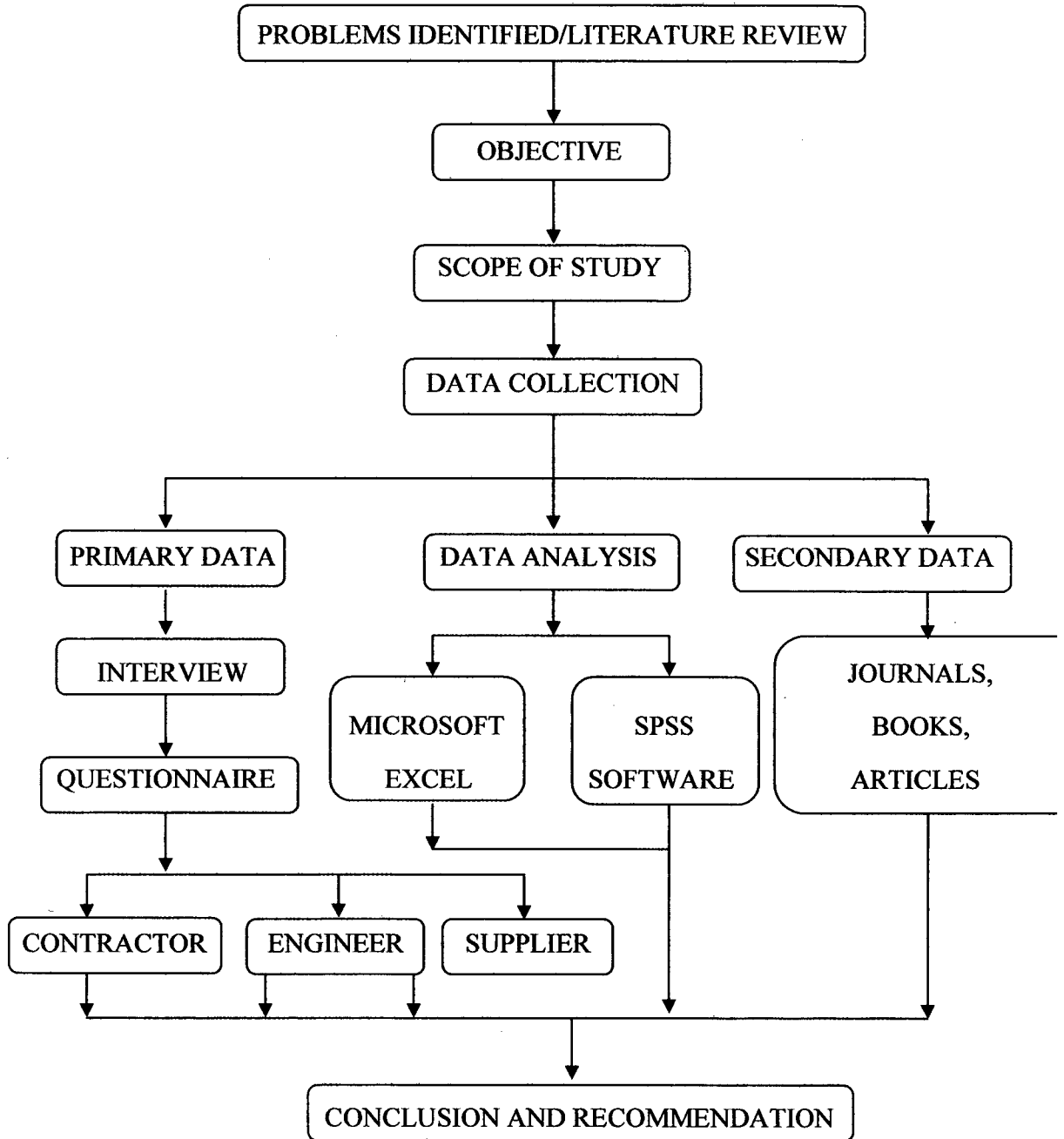


Figure 1.3: Flow chart of methodology.

1.6 Significance of Study

The significance of this study is to understand the exactly situation about our Malaysia's cement market. Secondly, to understand the factor and effect of the uncertainty in cement prices to contractor and to give suggestion on how to overcome the effects. Thirdly, to assist and provide information to contractor in effort to reduce the percentage of project failures regarding to the fluctuation prices of cement. Fourth, this study is as initial study for any detail study to plan strategy in order to control the effects of fluctuation in cement prices to contractor.

Next, from the effects of fluctuation in cement prices outcomes, the contractors can prepare for any further cement price increased since the hike in cement prices hit medium-sized contractors the most. Besides, they capable to avoid any cost burden with the information of fluctuate of cement prices. Lastly, the consultants will be aware with the cement industry issues and this will ease them since they require having basic information about cement prices, because it is important to them regarding to determine or estimating the cost of projects.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Cement is a manufactured product made by blending different raw materials and firing them at a high temperature in order to achieve precise chemical proportions of lime, silica, alumina, and iron in the finished product, known as cement clinker. Cement is therefore essentially a mixture of calcium silicates and smaller amounts of calcium aluminates that react with water and cause the cement to set.

The quality of cement clinker is directly related to the chemistry of the raw materials used. Around 80-90% of raw material for the kiln feed is limestone. Clayey raw material accounts for between 10-15%, although the precise amount will vary. Magnesium carbonate, which may be presented in limestone, is the main undesirable impurity. The level of magnesia (MgO) in the clinker should

not exceed five percent (5%) and many producers favour a maximum of three percent (3%); this rules out dolomite or dolomitic limestone for cement manufacture. Other deleterious materials include excessive alkalis (sodium oxide, Na_2O or soda and potassium oxide, K_2O) which would be unacceptable because of durability problems with the concrete. (Cement Raw Materials, British Geological Survey, November 2005).

2.2 Portland Cement

ASTM C 150 defines Portland cement as hydraulic cement (cement that not only hardens by reacting with water but also forms a water-resistant product) produced by pulverizing clinkers consisting essentially of hydraulic calcium silicates, usually containing one or more of the forms of calcium sulfate as an inter ground addition.

Portland cement is the most widely produced cement, both in the United Kingdom and worldwide. The term 'Portland cement' was created by its inventor in 1824 because of the presumed resemblance of the set material to Portland Stone, the well-known building stone. Other varieties include rapid hardening, low heat, sulfate resisting, and low alkali cements. In addition, blended cements are produced by finely grinding Portland cement clinker with other constituents, such as blast furnace slag, natural pozzolanas, silica fume, metakaolin, and silicious fly ash. (Federal Highway Of Administration, 1999).

2.2.1 Types of Cement For Concrete

There are so many types of cement that have been used nowadays. Portland cement is a closely controlled chemical combination of calcium, to which gypsum is added in the final grinding process to regulate the setting time of the concrete. Some of the raw materials used to manufacture cement are limestone, shells and chalk or marl, combined with shale, clay, slate or blast furnace slag, silica sand, silica sand, and iron ore. Lime and silica make up approximately eighty five percent (85%) of the mass.

Different types of Portland cement are manufactured to meet different physical and chemical requirements for specific purposes. The American Society for Testing and Materials (ASTM) Designation C 150 provides for eight (8) types of Portland cement.

2.2.2 Type I : Portland Cement

Type I is a general purpose Portland cement suitable for all uses where the special properties of other types are not required. It is used where cement or concrete is not subject to specific exposures, such as sulfate attack from soil to water, or to an objectionable temperature rise due to heat generated by hydration. Its uses includes pavements and sidewalks, reinforced concrete building, bridges, railway structures, tanks, reservoirs, culverts, sewers, water pipes and masonry units.