

SAFETY BUDGETING COST FOR CONSTRUCTION PROJECT

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Specially dedicated to
my beloved wife Noor Izyani Bt Mohd Nasir
and my beloved parents and family

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ABSTRACT

The safety performance of a building site varies with the amount of safety investment in the project. In general, the higher the safety investment, the better the safety performance will be and vice versa. The weakness of the current bidding system is that a contractor who bids for a project emphasize on estimating for major items only to lowers their price. This system will have an impact on the safety budgeting. The aim of this study is to evaluate safety budgeting cost regarding safety and health features for building construction project. The objectives of this study are to identify the term and condition in contract document which defines or specified about safety and health requirement and to describe the work breakdown structure as well as to quantify the cost of safety and health feature's element of work in a work breakdown structure. A total of seven contract document has been collected from several companies and a case study was conducted on a multi storey building in order to evaluate safety budgeting features. The findings show that most of the contract documents put little emphasis on safety budgeting. The Work Breakdown Structure for this project consist of basement and superstructure works, swimming pool and pool deck, external works and nominated sub-contractor works. Through the case study, the safety budgeting cost for the project was found to be RM905,373.00, amounting to 1.67% of the contract value RM54,000,000.00. In order to ensure that occupational safety and health is properly implemented, safety needs must at first be included in the budget. This can be achieved by making it as a permanent feature in the contract document bills of quantity.

ABSTRAK

Prestasi keselamatan tapakbina adalah berbeza mengikut peruntukan pelaburan keselamatan dalam projek pembinaan. Secara umumnya, lebih tinggi pelaburan keselamatan, lebih baik prestasi keselamatan dan begitu juga sebaliknya. Kelemahan sistem bidaan semasa ialah kontraktor yang menawarkan projek dengan anggaran atau peruntukan pada perkara utama sahaja untuk merendahkan harga mereka, sistem ini akan memberi kesan kepada bajet keselamatan. Tujuan kajian ini adalah untuk menilai kos belanjawan keselamatan mengenai ciri-ciri keselamatan dan kesihatan bagi projek pembinaan bangunan. Objektif kajian ini adalah untuk mengenal pasti terma dan syarat di dalam dokumen kontrak yang mentakrifkan atau dinyatakan tentang keperluan keselamatan dan kesihatan dan untuk menggambarkan struktur pecahan kerja dan juga untuk mengukur kos ciri-ciri elemen kerja keselamatan dan kesihatan dalam struktur pecahan kerja. Sebanyak tujuh dokumen kontrak telah dikumpulkan daripada beberapa syarikat dan kajian kes dipilih pada bangunan berbilang tingkat untuk menilai ciri-ciri bajet keselamatan. Hasil kajian menunjukkan bahawa kebanyakan dokumen kontrak menunjukkan penekanan diberikan kepada bajet keselamatan adalah sedikit. Struktur Pecahan Kerja untuk projek ini terdiri daripada tingkat bawah tanah dan struktur utama, kolam renang, kerja-kerja luaran dan sub-kontraktor dinamakan. Melalui kajian kes, kos bajet keselamatan bagi projek ini adalah sebanyak RM905,373.00, iaitu berjumlah 1.67% daripada nilai kontrak RM54,000,000.00. Dalam usaha untuk memastikan bahawa keselamatan dan kesihatan pekerjaan dilaksanakan dengan sewajarnya, keperluan keselamatan mesti dimasukkan dalam bajet kerana perlaksanaannya bukanlah percuma, ianya boleh dicapai dengan menjadikan ia ciri tetap dalam semua senarai kuantiti projek.

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CHAPTER 1

INTRODUCTION

1.1 Study Background

Construction work covers many activities, techniques, materials and hazards and it is this diversity that increases the probability of accidents' occurring. There is a commonality of accidents within the industry and the factors that can contribute indirectly to an accident. An accident may be defined as any unplanned event that resulted in injury or ill health of people, or damage or loss to property, plant, materials or the environment" (Health and Safety Executive, Construction Health and Safety, 1983.)

The construction industry has been long plagued by a high accident rate. This has made occupational safety and health (OSH) management one of the many important elements in the construction industry. The risk characteristics of a construction site are influenced by the amount of effort required to reduce the accident risk of the site by, for example, protecting the workforce from hazards and taking the necessary safety measures. Detecting the hazards of a site that could cause harmful effects on workers is crucial for successful safety management, because a

hazardous work environment affects not only site safety but also the time and cost of the project.

If the hazardous environment is incorrectly estimated and improperly protected, then the workforce will be exposed to possible dangers which could slow down their operations, undermine their productivity, and increase the possibility of unwanted accidents, thereby eventually increasing both time and costs. On the other hand, however, excessive or unnecessary safety measures may result in both delays in the schedule and in uncalled for costs. In order to detect the hazardous environment, it is necessary to identify the type of agents that affected death and injuries of the workers. Since the work environment of construction sites varies according to the progress of the project, the schedule affects the occurrence of hazardous situations, and the estimation of possible hazards must be coordinated with the project schedule.

Hazardous locations and high risk time periods can be effectively predicted if safety management and scheduling are coordinated. If the times and places with a high risk of accidents are accurately identified, then the safety manager can plan to avoid situations of concentrated risk by taking the necessary and appropriate safety measures. Such a coordinated effort can not only reduce the risk of accidents but also decrease project costs. If a work situation is identified as being similar to the situations where many accidents happened in the past, it can aid in determining the location and time where a high level of caution needs to be exercised and where more safety measures need to be provided. The complex and divergent nature of the tasks and environments involved in construction work generates many different types of occupational hazards. Injuries are caused by falls; electrocution; over-the-road motor vehicles; industrial vehicles and equipment; being caught in, under, or between objects; striking objects; explosions and fires; as well as heart attacks. Sprains and strains lead the occupational injuries, followed by cuts and punctures, fractures, bruises, abrasions, burns, and amputations, in addition to general diseases (Accident Facts 1984).

Different types of construction produce different types of hazards and associated injuries or illnesses. In building construction, for example, there are hazards associated with working and climbing at heights, and with falling objects. In heavy construction, on the other hand, hazards generally relate to working in trenches, using heavy equipment, building and rehabilitating bridges, and exposure to environmental extremes such as heat, cold, and hazardous materials. Safety issues have gained vital importance throughout the construction industry. Many construction companies around the world are implementing safety, health, and environmental management systems to reduce injuries, eliminate illness, and to provide a safe-work environment in their construction sites.

In construction, successful results depend on three resources, labour, materials, and equipment. Loss of any resource can lead to project failure. Workplace accidents have become a major concern because human loss can never be recovered. Accident victims face enormous personal difficulties, and require large amounts of resources to deal with the consequences of an accident. In general, there are three challenges to the maintenance of safe environments on construction sites. First, safety is difficult to measure, as obtaining a safe site depends on subjective judgment dependent on one's personal definition of safety.

In general, no process can be termed "safe" in an absolute sense. Resources devoted to maintaining a safe environment are measurable, but after devoting these resources the question arises: Is the safety process safe? Second, human error is not controllable, and individuals can only be blamed for negligence and controllable circumstances within their responsibilities. Construction projects are very complex and fragmented by nature, since many parties work together to achieve desired outcomes; therefore matching responsibilities with control is extremely difficult. Third, projects are unique and temporary in nature; therefore adopting a standardized process that can be enhanced according to lessons learned from prior projects can result in failure to predict new sources of hazards, depending on the nature of the project. Given these difficulties, there is a pressing need for safety management tools to maintain a safe work environment.

The Government and industry players have spent a great deal of time and effort to provide legislation and regulations to help reduce the accident rate and high number of 'lost work days'. However, the legislation and regulations exercised won't reduce the number of accidents and fatalities unless there is sufficient budget provided on health and safety management and its implementation. The players of the industry in one way or another agreed that safety measures need to be managed and implemented at all construction sites while meeting the legal compliance of Occupational Safety and Health (OSH).

There is no dispute that a safe construction site is an efficient one, hence better, faster and cost effective projects. However, it is sad to say that although commitment on safety management and implementation was given, this is merely lip service as far as financial commitment is concerned. Most industry players only provide a tiny allocation and in some cases, none at all for site safety implementation, everybody wants to implement safety but nobody wants to pay for it. The financial aspect is of most importance as nothing is for free in the implementation of safety on site and someone has to pay for it.

Most incidents in the construction industry are caused by human act more than improper conditions. Heinrich (1920), who studied accidents in industrial, mentioned that there are three main causes of accidents. First, 88% are human causes, 10% are mechanical failures or improper conditions, and acts of God are 2%. In order to reduce the accident, construction companies have to emphasize on safety programs which relate to human act more than the working condition.

The safety cost is one major element of the total cost that a construction company has to control as it can cause the construction organization to have a loss or accomplish the goal of profit, because of the problems on a lack of understanding of safety management as well as a lack of allocating safety budget management, Malaysian contractors have encountered with such accidents on the job site.

Budgeting for safety has not been taught in traditional business management. As the understanding of safety in the workplace improves, this lack of budgeting trend will change. Safety is now a component of most modern curricula in business and management schools. However, in practice the safety budget continues to be an afterthought. Planning for safety should be right up there with planning for staffing, utilities, and preventive maintenance programs. The safety budgeting cost is one major element of the total cost that a construction company has to control as it can cause the construction organization to have a loss or accomplishes the goal of profit. Because of the problems on a lack of understanding of safety management as well as a lack of allocating safety budget management, Malaysia contractors have encountered with such accidents on the job site.

Safety management in the construction industry is a laborious process but, if in place, it would seem to correlate positively with improved safety performance. The legislation only seems to have a demonstrable effect in combination with a restrictive policy of inspection. It is generally assumed that in the construction sector financial arguments play a more important role than accident figures. It is still unclear how the costs of lack of safety can be underlined but there are examples of projects, and audit methods that place safety more at the heart of decision-making, like the zero-accident approaches, Safety Health and Environment Checklist Contractors, The Risk Management Toolbox, or safety campaigns.

A project budget estimate is a financial plan to design and build a particular project and setting out the estimated costs to complete the project. Regardless of whether the project to be constructed is large or small, a prudent developer will certainly find it necessary to develop a budget for it. The primary purpose of preparing a budget is to understand and control costs and cost overruns. Cost overruns are mitigated by the inclusion of appropriate contingencies in the budget estimate to cover change orders, etc., and these contingency allowances are disbursed as the project proceeds to cover the additional costs.

Many a project gets into serious trouble when, for whatever reason, the project can't be developed within the budget. Usually, by the time the problem is discovered, it's too late to increase the budget, as financing has already been secured. So to keep the project within budget, critical features end up being compromised, such as the theming, finishes, and the quality of the materials, furniture, and equipment, the things that really matter the most to creating the guest experience. Or certain attractions are eliminated, so the project has never performed as originally planned and projections are never achieved. In fact, such last-minute deletions and changes can seriously threaten a project's very long-term survival.

1.2 Problem Statement

Over the past few decades, Malaysia has achieved significant improvements in the standards of occupational safety and health (OSH). The rate of occurrence of work related accidents has dropped from 11.0 for every 1,000 workers in the year 2000 to 6.1 per 1,000 workers in the year 2007. However, for the same period, the rate of fatalities has remained stagnant at around 12.8 for every 100,000 workers. The country had to pay out compensation for work-related injuries, diseases and fatalities covering both The Employment Injury Insurance Scheme and Invalidity Pension Scheme. There is clearly an urgent need for all of us to do more to enhance OSH standards in our country.

Work activities are hazardous to the safety and health of workers and others, especially if they are not properly monitored and controlled. An injury, disease or fatality caused by these work hazards does not just affect an individual worker alone. While the economic costs may be borne by his employer, his insurance firm or the Social Security Organization, the human costs are paid by his family, relatives, friends and immediate community. Goal-directed effort for improved OSH can help reduce the number of workplace accidents, injuries, illnesses and deaths. The

frequency of occurrence of both workplace accidents and workplace diseases needs to fall much further if we are to lower their cost to society.

The culture of safe and healthy work need to be cultivated and continually strengthened and attitudes toward the development of safe and healthy working conditions need to constantly evolve for the better. The importance of worker safety, health and well-being, in terms of productivity and competition, needs to be better understood and better taken into account. Budgets and safety of building projects are factors that both strive for attention.

There is general consensus that building contractors should increase their safety investment in their construction projects. The higher the safety investment is, the better the safety performance will be. However, the extent of the investment has been always a major concern. The safety performance of a building site varies with the amount of safety investment in the project. In general, the higher the safety investment, the better the safety performance will be, and vice versa. The weakness of the current bidding system is that a contractor who bids a project with emphasis estimate or budgeting on major item only for lowers their price. This system will have an impact on the safety budget and the safety program approach to be included in the project and thus generate the occurrence of an accident.

Most of the contract document does not accurately state the provisions of safety and health costs, this will cause the contractor to overlook of the budgeting to be made in safety and health issues, this will cause budget overrun. It was evident that most of them estimated safety budget by using their experience with the lack of a systematic calculation. In addition, they were not able to identify the safety items clearly in the safety budget which includes the cost of PPE, safety programs, and supportive items for safety. In the competitive construction environment, the essence of the estimating safety budget is emphasized not only preventing accidents, but also minimizing the total cost and the time of the project. Check on the previous project

reports, theses and research from universities in Malaysia have indicated that similar study is still in the state of infancy.

Hence, this study is an attempt to fill in the research gap and eventually answer what is the portion of the cost needed for sufficient safety and health feature's implementation in building construction project.

1.3 Research Aim and Objectives

The aim of this study is to evaluate safety budgeting cost regarding safety and health features for building construction project.

The main objectives of the study are identified as:

1. To identify the term and condition in contract document which defines or specified about safety and health requirement.
2. To describe the work breakdown structure elements involving safety and health features.
3. To quantify the cost safety and health component / features element of the work.

1.4 Scope of Study

The study is limited to construction companies in the Johor Bahru area. The case study is chosen from one of on-going project by Pyramid Phase, a Service Suite twelve storey apartment at Taman Mount Austin, Johor Bahru. The contract sum for this project is RM54 million, it started early January 2011 and will complete in August 2013. The data will obtain from interview on site with the person in-charge of that project.

1.5 Significance of Study

Construction accidents often lead to project delays. However, in practice, construction safety and schedule control are managed separately. The significance of this study is to develop deep understanding about the safety budgeting cost that could be applied in practice by a quantity surveyor. Thus, at any time point, quantity surveyor, project manager, safety managers and site staff can pay considerable attention to activities with high expected safety and health costs.

Enhancing knowledge of the safety factors (such as safety training and site environment) to which an activity (or path or zone) is sensitive, and also about the activities (or paths or zones) that are most sensitive to a particular factor can provide management with a better sense of what factors and activities (or paths or zones) need to be controlled for reducing construction accidents, especially for a large project or multiple projects.

1.6 Arrangement of the Report

This master project report consists of five chapters which are the introduction, literature review, methodology, result and discussion, and conclusion. Introduction chapter describes the background and the need to study the safety budgeting cost for construction project.

The literature review chapter describe the definition, accident cost, work breakdown structure, contract document and analysis cost which was gathered from various sources such as books, journal paper and journal conference. Research methodology chapter explains the method used to conduct this study which is taken from the author's in occupational safety and health, experience panel interview and supported with the refereed literature.

The interview data and the literature review was analysed and the result are discussed in result and discussion chapter. Then, the conclusions are made based on each of the objectives of this study as described in conclusion chapter.

REFERENCES

- Eddie W.L. Cheng, Neal Ryan, Stephen Kelly (Oct 2011) “*Exploring the perceived influence of safety management practices on project performance in the construction industry*” *Safety Science* 50 (2012) 363–369
- Josephine A. Mauskopf, Sean D. Sullivan, Lieven Annemans, Jaime Caro, C. Daniel Mullins, Mark Nuijten, Ewa Orlewska, John Watkins, Paul Trueman (2007) “*Principles of Good Practice for Budget Impact Analysis: Report of the ISPOR Task Force on Good Research Practices - Budget Impact Analysis*”
- Katharyn A. Grant, John G. Garland, Todd C. Joachim, Andrew Wallen & Twyla Vital (2003) “*Achieving Health, Safety, and Performance Improvements Through Enhanced Cost Visibility and Workplace Partnerships*” *AIHA Journal* 64:660–667 (2003)
- Kenneth J. Arrow, Maureen L. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G., Matthew Hallowell (2010) “*Cost-effectiveness of construction safety programme Elements*” *Construction Management and Economics* (January 2010) 28, 25-34
- Paul R. Portney, Milton Russell, Richard Schmalensee, V. Kerry Smith, and Robert N. Stavins (April 1996) “*Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?*” *American Association for the Advancement of Science* Volume 272, pp. 221-222
- Paul Swuste, Adri Frijters, Frank Guldenmund (2012) “*Is it possible to influence safety in the building sector? A literature review extending from 1980 until the present*” *Safety Science* 50 (2012) 1333-1343

- Randy Giesecking, Account Manager Safety Management Group (Feb 2006) “*Safety Budgets: Budgeting for a Safe Operation*” Safety Management Group February 2006
- Richard WN Tse (April 2009) “Budgeting for Safety”
- Rikhardsson P.M., Martin Impgaard (2002) “*Corporate cost of occupational accidents: an activity-based analysis*” Accident Analysis and Prevention 36 (2004) 173–182
- Romain Jallon, Daniel Imbeau, Nathalie de Marcellis Warin (2011) “*Development of an indirect-cost calculation model suitable for workplace use*” Journal of Safety Research 42 (2011) 149-164
- Tang S. L., H. K. Lee & K. Wong (2006) “*Safety cost optimization of building projects in Hong Kong*” Construction Management and Economics (1 997) 15, 177-1 86
- Tony Baxendale, Owain Jones (2000) “*Construction design and management safety regulations in practice - progress on implementation*” International Journal of Project Management 18 (2000) 33-40
- Todd W. Loushine, Peter L.T. Hoonakker, Pascale Carayon & Michael J. Smith (2006) “*Quality and Safety Management in Construction*” Total Quality Management Vol. 17, No. 9, 1171-1212, November 2006
- Wei Chih Wang, Jang-Jeng Liu, Shih-Chieh Chou (2006) “*Simulation-based safety evaluation model integrated with network schedule*” Automation in Construction 15 (2006) 341-354

APPENDIX A**"Interview Questions"**

**FALCULTY OF CIVIL ENGINEERING
UNIVERSITY TECHNOLOGY MALAYSIA, SKUDAI
JOHOR – MALAYSIA**

"Master Project Title"

SAFETY BUDGETING COST FOR CONSTRUCTION PROJECT

Objectives of the study:

1. To identify the term and condition in addendum/addition form of contract which defines or specified about safety and health requirement.
2. To describe the work breakdown structure elements involving safety and health features.
3. To quantify the cost safety and health component / features element of work.

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Section A: General Information

Please answer the following questions ():

1. Respondent gender: male () female ()

2. Designation (title/position):

3. Natural of business / Represent

Client () Consultant () Contractor () Sub-contractor ()

Other, state

4. What is your typical role on a project team?

5. Years of experience: years

6. Please indicate the contract value of your project:

Less than RM 20 million () RM 20 million and above ()

Section B: This section is to identify the term and condition in addendum/addition form of contract which defines or specified about safety and health requirement.

- 1) Whether there are additional provisions in the tender/contracts documents relating to occupational safety and health.
- 2) Can you brief about additional provisions in the tender/contracts documents relating to occupational safety and health.
- 3) If there are no additional provisions in the contract documents, whether the company will provide the additional cost for enhance relating to occupational safety and health.

- 4) If company will provide the additional cost for enhance relating to occupational safety and health, what are the additional provisions will be implemented.

Section C: This section is to describe and quantify the cost safety and health component / features element of work.

- 1) Can you describe what are the elements involving safety and health features in work breakdown structure.
- 2) Can you brief on the safety operation procedure involving safety and health features in work breakdown structure.
- 3) Can you brief how to quantify the cost safety and health component / features element of work in work breakdown structure (WBS)
- 4) Can you brief how to breakdown the cost for safety and health component / features in work breakdown structure.