

THE EVALUATION ON RISK FACTORS FOR PUBLIC-  
PRIVATE PARTNERING PROJECT IN PERAK  
CONSTRUCTION INDUSTRY

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## **ABSTRACT**

The purpose of this paper is to evaluate the risk factors of Public-Private Partnering (PPP) Project in the state of Perak, Malaysia. The existence of these risk factors for application of PPP projects would help the joint-venture projects between public and public sector, especially in Perak, to be able to investigate their current PPP projects practices and how they could be improved. Risk factors are identified by extensive literature review from previous study. Then, Delphi method is used to identify significant risk factors in Perak PPP practices and Analytical Hierarchy Process (AHP) approach is used for determining the ranking of risks for impact level of PPP projects. The Delphi method is employed by gather data from experts involve in PPP projects in Perak and the AHP approach is based on pair-wise comparison from expert's judgement between each significant risk factor. The series of rounds that took place during the Delphi method increased the length of time required for data collection and the follow-up process. On the basis of the consideration given, the limited resources included time, financial resources, and technical availability for this study, small sample sizes has been used. The ranking of risk impact level for PPP projects could be useful for stakeholders involved in PPP project to create action plans to reduce risk, save cost and time, and increase quality of output for PPP projects. Based on the study, 40 risk factors have been identified and 11 factors is have been validated as significant risk factors. The finding of this study showed third party delay risk is the most important factors for impact level of risk in Perak PPP projects.

## **ABSTRAK**

Tujuan kajian ini adalah untuk mengkaji factor risiko dalam projek usahasama antara sektor awam dan sektor swasta di negeri Perak, Malaysia. Kewujudan faktor ini dalam penggunaan projek usahasama akan membantu dan membaiki usahasama antara sektor awam dan swasta tertamanya di Perak. Faktor risiko telah diekstrak daripada kajian sebelum ini. 'Delphi method' telah digunakan untuk mencari faktor risiko yang ketara dalam projek usahasama di Perak dan 'Analytical Hierarchy Process' digunakan untuk pemeringkatan impak faktor risiko dalam project usahama di Perak. 'Delphi method' dijalankan dengan temuramah dan mengumpul data daripada pakar dalam bidang ini dan 'AHP' digunakan dengan menggunakan perbandingan 'pair wise' untuk setiap faktor risiko. Beberapa siri soalan kajian telah dijalankan untuk 'Delphi method' bagi meningkatkan waktu untuk mengumpul data dan ketepatan data . Walaubagaimanapun, masa, sumber kos dan pengetahuan teknikal adalah terhad oleh itu, sampel kajian yang kecil telah digunakan. Pemeringkatan faktor risiko dalam usahama antara sektor awam dan swastadi Perak amat berguna untuk semua yang terlibat dalam projek usahasama sebagai mengambil langkah awal seperti mengurangkan risiko, menjimatkan kos dan masa, dan juga meningkatkan kualiti produk bagi projek usahasama di Perak. Berdasarkan keputusan kajian, kelewatan pihak ke tiga menjadi faktor impak utama kepada projek usahasama di Perak.

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## **LIST OF ABBREVIATION**

AHP	-	Analytical Hierarchy Process
BLT	-	Build-Lease-Transfer
BOO	-	Build-Operate-Own regression
BOOT	-	Build-Operate-Own-Transfer
BOT	-	Build-Operate-Transfer
BROT	-	Build-Rahabilitate-Operate-Transfer
CR	-	Consistency Ratio
DBFO	-	Design-Build-Finance-Operate
DOSH	-	Department of Occupational Safety and Health
EPU	-	Economic Planning Unit
EU	-	European Union guildlines
KLIA	-	Kuala Lumpur International Airport
PFI	-	Public Finance Initiative
PMI	-	Project Management Institute
PPP	-	Public Private Partnering
US	-	United State
UKAS	-	Unit Kerjasama Awam Swasta
VFM	-	Value for Money

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Public-Private Partnerships (PPP) and other forms of cooperation between the private sector and local and national governments are used frequently around the world to develop and expand energy and utility networks and services, extend telecommunications and transportation systems, construct and operate water, sewer, and waste treatment facilities, and provide health, education and other services (Dennis and Max, 1996). In many developing countries, governments are also using PPP to finance and manage toll expressways, airports, shipping ports, and railroads and to reduce environmental pollution, build low-cost housing, and develop ecotourism (Rivera, Brenes and Quijandria, 1998). Recently, government is increasing the number of PPP projects to financing, maintaining infrastructure and providing public service that are facing financial challenges. In the 10th Malaysian plan, government shall establish more PPP projects to promote the economic growth.

Accordingly, the Malaysian government defined 52 new PPP projects worth RM63 billion for 2011–2020 (Leong, 2010). Although PPPs have many benefits, the system have some drawbacks related to complexities in planning, arrangement in relation to documentation, the dynamic nature of documentation, capital budget and taxation, control, monitoring, performance, politics and policies (Grimsey and Lewis, 2002). Most of the risks arise from these types of complexities in PPP projects (Heravi and Hajihosseini, 2011). Therefore, risk management is essential for construction projects especially projects that are based on PPP concept (Lam *et al.*, 2007).

## **1.2 Problem Statement**

Partnerships are exposed to various kinds of risk due to its complexity and unique in nature. Several PPP projects have failed to achieve budget, deadlines, and quality which most of these projects have been exposed to high risks (Thomas *et al.*, 2003). Malaysia's percentage of PPP project failures is the second highest in East Asia with 22 failed projects. The number of PPP projects that have failed in Sub-Saharan Africa, South Asian, Europe and Central Asia were 50, 13 and 36 respectively (World Bank, 2013). It is worth emphasizing that risks may have direct impact and indirect impact on costs. For example, private sector will attempt to increase its

financial gains from a project, hence neglecting some of quality features of a service such as materials, grades and defects. There are many different types of risk that PPP's project may face but there are a few number of construction practitioners in Malaysia who implementing risk management (Yusuhan et.al, 2000). Thus, many stakeholders failed to detect the significant risk and evaluate risk accordingly to suit the project needs, cost and time management.

### **1.3 Research Aim and Objectives**

The main aim of this research is to evaluate risk factor that affected PPP projects in the states of Perak. This study focuses on three main (3) objectives, which are:

- i. To identify the general risk factors relevant in Malaysia PPP projects in construction industry.
- ii. To determine the significant risk factors in Perak PPP projects using Delphi Method.
- iii. To rank the significant risk impact level using Analytical Hierarchy Analysis (AHP).

## **1.4 Scope of Work**

This research is focus on identification of the risk factors that is valid to the construction industry practice in Malaysia. Thus, the significant risks is determine and rank accordingly between the private and public sector in Perak. The limitation of this research are it only investigates certain areas of risk factors in PPP's project, there is little known about the driven risk factor and ranking in local state especially in Perak and project risk ranking may have consequences in form of time or range such that it is difficult to make decisions without considering those factors. There are also limited numbers of construction firms, consultants that involved in Perak PPP project hence, limited sample of data are use in this study. This study was carried out by using questionnaire survey and interviews. Therefore, in order to reduce errors and increase accuracy, a qualitative judgment of experts has been converted to a quantitative model by using Delphi Method and AHP approach.

## **1.5 Significance of Study**

As explained in earlier section, this study is important in order to give understanding and assist on identifying and evalutating significant risk impact level in PPP projects especially through the



whole life cycle of the projects. The findings also ensure the long-term partnership between private and public sector. It also give important impact towards the public and private sector in construction industry by contribute additional knowledge on risks in Perak PPP projects. Moreover, this study may help private and public sector to highlight major risks factor and problem in earlier stage of construction to avoid disputes between stakeholders, saving time and cost of a project. This research may help stakeholders to develop a better decision making model using risk management tools to evaluate risks. Finally, the results will definitely help to increase public policy improvement towards partnering project and carry out PPP contract to their risk perceptions.

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