

**UNIVERSITI TEKNOLOGI MARA**

**NARROWING RANGE OF  
CONCESSION PERIOD FOR  
BUILD OPERATE TRANSFER  
HIGHWAY PROJECT UNDER  
PUBLIC PRIVATE PARTNERSHIP  
USING BARGAINING GAME THEORY**

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## ABSTRACT

Public Private Partnership is one of the popular contracts used in building infrastructure in Malaysia. One of the important aspects in the contract is to find reasonable concession period which protect both government and private sectors from losing. This research provides a methodology to narrow the range of concession period that would benefit both government and private sectors taking the impact of risks into consideration. Required data for this research were obtained by interviewing representatives of private sector and retrieving annual report of the company that was available on Bursa Malaysia. The financial model was evaluated using Monte Carlo simulation on the computational software to compute Net Cash Flow and Net Present Value. The range of concession period for the private sectors and government to negotiate is generated by the simulation. In order to narrow the range of concession period, Bargaining Game Theory was employed. The benefit formulae proposed by L. Y. Shen, Bao, Wu, and Lu (2007) was modified by taking the average between two NPVs to suit the Malaysia case study. Therefore, the modified formulae provides fair benefit for both parties. To demonstrate the applicability of suggested methodology, Build Operate Transfer (BOT) highway project in Malaysia were used in this research. The narrowing concession period was found to be shorter than the actual concession period. Using the suggested methodology, government could further improve its policies in processing BOT projects thus, attract private sectors interest in infrastructure development.

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# **CHAPTER ONE**

## **INTRODUCTION**

This section provides the details about the study. It presents the background of the problem and motivation for carrying out the research. In this chapter, the problem statement, the objectives, the scope and limitation, and the significance of the study are presented.

### **1.1 BACKGROUND OF THE STUDY**

Developing country would focus on its infrastructure to ensure continuous economic growth and attract potential investor into the nation. However, problems arise as government have limited funding and need to consider other public needs such as school, power plant and government buildings. An alternative solution for these arising problems is collaboration or partnership with private sector. Both party, the government and the private sector will benefit from the arrangement.

During the world economic recession in 1980's, Malaysia Government has introduced Public Private Partnership (PPP) or Private Finance Initiative (PFI) scheme in order to seek assistance from the private sector. The Government had officially announced the implementation of public projects using the PPP scheme under the 9<sup>th</sup> Malaysia Plan.

PPP consists of several conditions and formats to be met. Firstly, the risk and rewards separated between private and government sectors in order to make government projects more efficient. Secondly, support from the government enhances private sectors' projects viability in promoted or strategic areas. Thirdly, private sector builds assets and leases them to government sector in a specific and agreed period of time. Lastly, private sector recognizes ventures that are considered financially reasonable to be executed through PPP plan (Bhd, 2006).

For previous major PPP projects in Malaysia, the method Build Operate Transfer (BOT) were used to develop various infrastructures such as roads, ports, local airports, international airport, power, water supply, sewerage, hospitals and rail. In this method BOT is where private sector build, operates and transfer the infrastructure to