

CAUSES OF GOVERNMENT BUILDING DEFECTS AND FAILURES  
PERCEIVED BY JKR STAKEHOLDERS

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Thank you Allah.

To my beloved mother, Junaidah Zainal; my wife, Annajiha Silim and my lovely children Khir Iman, Khaira Nuha and Khidr Imran.

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## ABSTRACT

There are an immense number of government buildings, which include the hospitals, schools, quarters, offices, and etc. These buildings range from single storey to several storeys and vary in ages. Those buildings are owned by various government departments. Problems in government buildings are often referred to JKR regardless of whether JKR was involved in the planning, design, award of tenders or supervision of these buildings in the first place. Causes of the building defects and failures must be identified as soon as possible before higher public funds are required for remedies and prevent any fatality. The project has been carried out with the aim to determine frequency and severity of the causes that help government to take immediate or preventive actions. Questionnaire was distributed to selected stakeholders from JKR Putrajaya, JKR Forensic and contractors. Analysis on frequency of occurrence and severity effect was performed and the result shows the causes 'inadequate and inaccurate data and information available (as-built drawing, use of the building layout plan and renovation by client)' is the main cause of government building defects and failures. Further analysis on severity effect and cross tabulation shows that most of the respondents from JKR Putrajaya, JKR Forensic and contractors have the same perception on the causes of government building defects and failures.

## ABSTRAK

Terdapat pelbagai kategori bangunan kerajaan antaranya ialah hospital, sekolah, kuarters, pejabat dan lain-lain. Bangunan-bangunan tersebut juga terdiri daripada jenis setingkat sehinggalah bangunan tinggi yang bertingkat-tingkat dan berbeza dari segi usia. Bangunan-bangunan tersebut dimiliki oleh jabatan kerajaan yang tertentu. Seringkali apabila timbul masalah pada bangunan kerajaan maka ianya akan dirujuk kepada JKR tanpa mengambil kira samada JKR terlibat atau tidak sewaktu proses perancangan, rekabentuk, urusan kontrak atau pengawasan pembinaan bangunan tersebut. Punca-punca kecacatan dan kegagalan bangunan kerajaan tersebut perlu dikenalpasti dengan segera bagi mengelakan berlakunya kemalangan dan seterusnya kerajaan perlu berbelanja besar untuk tujuan baikpulih. Tujuan kajian ini dijalankan adalah untuk mengenalpasti kekerapan dan kesan yang berlaku daripada punca-punca yang menyebabkan kecacatan atau kegagalan bangunan kerajaan dan seterusnya dapat membantu kerajaan mengambil tindakan segera dan langkah-langkah pencegahan. Borang kaji selidik telah diedarkan kepada responden daripada JKR Putrajaya, JKR Forensik dan kontraktor. Analisis terhadap kekerapan dan kesan telah dijalankan dan keputusan analisis menunjukkan bahawa 'data dan maklumat yang sediaada tidak cukup dan tidak tepat (lukisan terbina, susun atur kegunaan bangunan dan pengubahsuaian oleh pelanggan)' merupakan punca utama kecacatan dan kegagalan bangunan kerajaan. Analisis lanjut ke atas kesan dan jadual silang menunjukkan bahawa kebanyakan responden daripada JKR Putrajaya, JKR Forensik dan kontraktor mempunyai persepsi yang sama terhadap punca-punca berlakunya kegagalan dan kecacatan ke atas bangunan kerajaan.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Background of the Problem**

Public Work Department of Malaysia (JKR) is the oldest and the biggest technical department in Malaysia. Since 1872 till now, JKR is the main project implementer for Government of Malaysia. JKR has been entrusted by Government of Malaysia to implement all the five-year Malaysia Plans and has being delivering various building, infrastructures and civil engineering project throughout the nation.

In 2015, Government of Malaysia once again appointed JKR as a trusted agency to be responsible in the asset management for infrastructures and buildings own by government (General Circular No.1, 2009). There are an immense number of government buildings, which include the hospitals, government schools and colleges, quarters for government workers, etc. These buildings range from single storey houses to apartments of several storeys, and vary in ages. They are owned and maintained by various government departments (JKR, 2006)

JKR directly involved in maintenance of government building in Putrajaya whilst others government buildings outside Putrajaya are maintain by owner of the building which is the related Ministry or Department etc. Types of maintenance also varies whether by concessionaire, departmental or one-of project.

In the meanwhile, if any defects or failures occur to the government building, the JKR Forensic Division under Civil Engineering and Structural Branch is responsible to carry out structural inspection and assessment of structural defects and failures in Malaysian government buildings. Very often, the Division has been assigned to investigate causes of structural defects in government buildings within limited time, resources and cost under great political influences. The Division needs to completely provide the report within a shorter time and send report to the respective clients. In order to deliver the task given to JKR and to ensure all the government buildings in Malaysia are safe and sustainable, causes of defects and failures need to be study.

## **1.2 Statement of the Problem**

Putrajaya is the new federal government's administrative center in Malaysia. Government buildings exist in Putrajaya has an attractive design and became one of the attractions for tourists to visit Malaysia. Every time when top leaders from other country around the world came to Malaysia, Putrajaya is a must place to visit because the Prime Minister's office was also located in Putrajaya. Indirectly, the country's reputation in the eyes of the world also depends on the image that is shown in every government buildings in Putrajaya. Therefore, these government buildings in Putrajaya need to be maintained properly to ensure good name of this country.

The Government of Malaysia through Prime Minister Office (JPM) has entrusted and delegated the responsibility for maintaining all government's buildings in Putrajaya to JKR (General Circular No.1, 2003). Roles and responsibilities for JKR have been stated in the circulars as the implementing agency responsible for planning, control and supervision of all matters of maintenance, the appointment of contractors, budget preparation and control. In 2015, JKR has managed a total of twenty seven numbers of contracts at a total cost of RM900 million.

From March 2015 until May 2015, an audit was carried out by Auditor General Office to monitor the maintenance of government buildings in Putrajaya under JKR's supervision. Sample of seven numbers of contracts at a total cost of RM220 million has been chosen. The result from the audit shows that 67% of the findings fall into physical and management of maintenance. Physical performance means the condition of the building whilst maintenance management performance is related to the management of maintenance contractors. From the overall summary, the percentages are related to defects in the buildings that have been identified by the auditor during the audit.

Among the defects identified during these audits is waterproof roof, wall cracks, corrosion, leaking and etc. Since the audit was conducted on the JKR performance, other factors as deterioration of the structure, design, poor workmanship and poor maintenance are not taken into consideration by the auditor. In understanding the real causes of disability and the failure of a building, this study will identify the causes of defects and failures of a building based on the views of the parties involved as clients, JKR Putrajaya, JKR Forensic and contractors. Sometimes, when defects or failures happen, finger-pointing between parties involved would occur. To avoid blames between stakeholders, this study also will compare the differences in perceptions of the parties involved to agree on solving problem.

### **1.3 Research Questions**

The research questions of this study are as follows:

- i. What are the causes of government building defects and failures?
- ii. How to rank the causes of government building defects and failures in term of frequency of occurrence and severity effects?
- iii. What is the perception of the key stakeholders toward the issue of government building defects and failures?



#### **1.4 Objectives of the Study**

Followings are the objectives proposed for this study: -

- i. To identify the causes of government building defects and failures.
- ii. To establish the ranking of significant causes of building defects and failures.
- iii. To compare the differences in perceptions of three stakeholders, namely the JKR Putrajaya, JKR Forensic and contractors.

#### **1.5 Scope and Limitation of the Study**

This study was limited to causes of government building defects and failures handle and involved directly with JKR. Other than that, most of the buildings located at Putrajaya which is the center of Federal Government offices and administration. The development of questionnaire will cover more on structural and non-structural defects and failures. Those respondents must have at least basic knowledge on technical part and situation and they are JKR Putrajaya, JKR Forensic and contractors. The perception did not consider the clients view because they are not responsible to defects and failures to the buildings.

#### **1.6 Significance of the Study**

This study will provide useful information's on causes of government building defects and failures so it can be used to resolved problem related to planning, designing, construction and maintenance of government building in the future. Finding

from this study will show how important project management for JKR during early stage of project and what is the effect to the buildings after constructions period.

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