



**DEVELOPMENT OF SHORT SPAN BRIDGE (SSB) STRUCTURES  
USING INDIGENOUS AGRO-BASED MATERIAL**

**RESOURCES: DESIGN EXPERIMENTATION USING FEA**

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## **ABSTRACT**

In bridge and building construction, indigenous agro-based materials are still under employed in structural forms compared to steel construction. For indigenous agro-based materials to succeed on the construction market it is necessary to develop new material forms and construction methods that will allow for economic use of the material. Design and analytical study of a SSB is a project to design a short span bridge which is less than 10 meters and to determine deflection and bending moment of SSB under static loading condition. This project is implemented by using LUSAS software. This software is selected because of its capability to deal with uncertainty factor and capability of learning from the given input.

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## **CHAPTER I**

### **INTRODUCTION**

#### **1.0 Overview**

In Malaysia, then known as Malaya, the construction of construction of early roads and bridges was a necessity to facilitate the movements of people and goods. The early bridges were mainly made of steel in the form of trusses, arches and beams, which was a subsequent product out of the 18<sup>th</sup> century Industrial Age in England.

There are now more than 10,000 bridges in Malaysia of various sizes and forms, out of which approximately 2,500 are located on federal roads. Nowadays, there are many techniques for bridge construction using computer software such as LUSAS. Concrete and steel have been replaced by another material such as FRP, GFRP and others fiber polymer materials, research have been made by using agro-based indigenous materials for the purposes of higher achievement in bridge construction technology (1).

The objective of this research project is to examine the use of indigenous agro-based fibers materials for SSB. Before we do experimental investigation and numerical analysis, geometrical and mechanical properties of the materials should be determined first by another research group. The viability of using agro-based fibers material in SSB