

## Innovation in the design and construction of Temburong Bridge, Brunei

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### Abstract

The 27km long Sultan Haji Omar Ali Saifuddien Bridge in Brunei (known as Temburong Bridge) is the longest bridge in Southeast Asia. The Temburong district was isolated from the rest of Brunei by the Malaysian state of Sarawak since 1890. The new bridge connects the district with the more developed Brunei-Muara district, improving connectivity and accessibility to goods and services, facilitating economic development and provides a 24-hour physical link, eliminating the need to go through two Malaysian borders, reducing journey time from 2 hours to 30 minutes.

The bridge was procured as a traditional engineer-design arrangement under various construction contracts. The bridge includes a 14km long marine viaduct across Brunei Bay, two concrete deck cable stayed bridges and a 12km long swamp forest viaduct. This bridge was opened early in 2020 to allow residents to travel to/from Temburong without crossing the Malaysian borders which were shut due to COVID. This paper focus on the innovation of the design and construction of the bridge and discuss the values they bring.

**Keywords:** Sea-crossing, major bridges, cable-stayed bridges, long span bridges, viaducts.

### 1 Introduction

Brunei is a sovereign state located on the north coast of the island of Borneo in Southeast Asia. Apart from its coastline with the South China Sea, it is completely surrounded by the state of Sarawak, Malaysia; and since 1890 it has been separated into two parts by the Sarawak district of Limbang.

This physical separation of Temburong district from the majority of Brunei has significantly affected the economic development of the district and Brunei as a whole. Despite comprising 23% of the total land area of Brunei, Temburong only contains 2% of the population.

Although plans for a bridge across Brunei Bay had been considered in the past, the current project Feasibility Study was carried out from May 2010 to March 2012 by Arup. The study concluded that a fixed link connecting the two parts of Brunei was