# Chacao Suspension Bridge: Tender and Technical Challenges

**Matías A. VALENZUELA**
Civil Engineer, Msc, PhD.
Public Works Ministry
Santiago, CHILE
*matias.valenzuela@mop.gov.cl*

Matías Valenzuela, born 1981, received his civil engineering degree from the Univ. of Chile, Chile, and his Master and PhD degree from BarcelonaTECH. He also is Professor at the Univ. Los Andes, Chile.

**Marcelo A. MÁRQUEZ**
Civil Engineer, Msc.
Public Works Ministry
Santiago, CHILE
*marcelo.marquez@mop.gov.cl*

Marcelo Márquez, born 1974, received his civil engineering degree from the Univ. of Santiago, Chile, and his Master degree from Pol. Univ. of Madrid, Spain. He also is Professor at the Univ. of Santiago, Chile.

## Summary

Since the 90s it has studied a fixed connection from the Chiloé Island to the mainland of Chile, in the region of Los Lagos - Chile, by a bridge. In 2005, an approach to the construction gave way to a tender under the Private Public Partnership (PPP) model, but it had an early termination in the engineering phase due to investment exceeding the pre estimated amount. In 2012 a revaluation of the project changed the bussiness model to a "Design & Build" contract within the procurement system that is traditional for the state of Chile.

The Chacao bridge corresponds to a suspension bridge typology, with multi-span (three pylons) and with a total lenght of 2.6 km, located in one of the highest earthquake zone in the world, (intensity of Mw 9.5) and subject to heavy wind loads and large-scale marine current.

The paper discusses the new bidding process and technicals analysis of the background reference developed for the bridge over the Chacao channel. It analyzes the main technical elements of the bridge in relation to the load applied, regulations and contracting method chosen. Finally, it presents the guidelines and selection criteria for the definition of the largest public work tendered in Chile up to now, framed by relevant economic and technical facts (design, construction and maintenance).

**Keywords:** bridge; suspension; tender; design; maintenance; monitoring.

## 1. Introduction

Route 5 from Chile, the main route of terrestrial communication of the country, has its beginning in the border with Peru, and extends toward the south for more than 3,364 kilometers to the town of Quellon in the south of the Big Island of Chiloe. However, this route is interrupted by the Chacao channel, at the junction between the mainland and the island (Fig 1). Currently the ferry system fills this lack of fixed connection. In the 1990s a prefeasibility study is initiated to determine the best alternative to fixed connection. From these studies it was determined that the feasible solution corresponds to a suspension bridge, discarding the options of Cable stayed bridge and tunnel.

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