

Trillizos Bridges (The Triplets) in La Paz, Bolivia

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Summary

The construction of a ring road allowing traffic decongestion in the city of La Paz, Bolivia is currently being finished. The new road should save three parallel valleys with bridges. These three consecutive bridges have similar characteristics and therefore they are called Trillizos (the Triplets). They all are three-span extradosed concrete structures, with maximum span of 113,5m. They are built through balanced cantilever method. The aesthetic, functional, environmental and construction aspects condition and define them. This paper describes the bridges, the design criteria and the construction process.

Keywords: Bridge, urban, extradosed, construction, design

1. Work genesis

La Paz has a very complex and steep topography, dominated by numerous ravines of the Choqueyapu River that crosses the city from east to west. Communication between some neighbourhoods is difficult and inadequate, especially in the highest ones, located at more than 3.600 m above the sea level, where weather conditions become even more extreme and which are often the least developed.

The Municipality of La Paz has decided to promote the construction of a new road connecting the eastern (IV Centenario) and western (Sopocachi) slopes in the city centre. The new access road remarkably improves the connection between several neighbourhoods and help to decongest the traffic in the centre of this city with more than two million inhabitants. This new road is the second ring road in La Paz. In the heart of the city, where the presidential residence is located, the new road crosses three parallel and consecutive valleys called Kantutani, Choqueyapu and Orkojahuira, which are saved through three similar bridges: the Trillizos Bridges.

The project was funded by CAF (*Corporación Andina de Fomento*) through a credit to the Municipality in 2006. The work, contracted through the "turn-key" modality, had an initial budget of US\$ 14 million that increased to US\$ 18,3 million primarily because of higher material costs. In 2007 the Municipal Government of La Paz awarded the design and construction of Trillizos Bridges project to the *Consorcio Asociación Accidental Progreso*. As part of this contract, PEDELTA has carried out the bridges design.

There was a preliminary design that defined three three-span cable-stayed bridges with central spans between 90 and 110 m and two planes of stays, similar to another existing in the city: the Bridge of the Americas designed by Jean Muller in the nineties.