



Bridges to Prosperity Llapallapani Suspension Pedestrian Bridge, Llapallapani, Bolivia

Pushing the B2P Suspension Bridge Limits

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Abstract

This paper discusses the conceptualization, design and locally-appropriate construction, and development of the Llapallapani Pedestrian Bridge. At 128-meters, the suspension footbridge is located in the Andes Mountains, in the central Bolivian municipality of Llapallapani. The bridge was completed in 2015 and provides safe access for children up and down the valley to go to school without having to wade through the Anquioma River, which flows very high during the snow melt runoff season. It also provides safe, year-round access for residents to transport produce and other goods across the river, to and from markets in nearby communities.

Keywords: Bridges to Prosperity; Bolivia; footbridge; resources; suspension bridge; safe access

1 Introduction

All Bridges to Prosperity (B2P), a non-profit organization based in Denver, Colorado, prefers to furnish human and material resources for its projects, and to inspire robust local organizations by providing training and mentoring. Constructing the Llapallapani bridge with local labor and materials, and with help from B2P staff and volunteers, proved very effective. This model, with due consideration of the community's capabilities, is being replicated in other global locations with similar conditions throughout B2P's worldwide footbridge program.

At the time of its completion, the Llapallapani bridge claimed the longest span completed by Bridges to Prosperity. The scope of the project, from its relatively remote location to the long span length and enormous amount of local labor needed, tested the B2P model for bridge construction. During the 2015/2016 construction seasons, B2P had three long suspension bridges to construct; the Llapallapani bridge in Bolivia and

two in Haiti. The Llapallapani bridge served as a prototype for the Haitian bridges, the lessons learned from Llapallapani contributed to a more efficient construction of the two bridges in Haiti.

While this long-span structure used sustainable methods, the volume of work and scope of materials was a strain for this rural, developing community. Due to the bridge's long span and limited accessibility, innovative construction methods (along with significant local labor) were needed to complete the project with minimal use of heavy machinery.

2 Conditions Upon Arrival

At Llapallapani, the original river crossing method consisted of fording the minor channels and using a bridge constructed of three logs resting on two river stone made tiers to cross the main channel. The mountainous terrain results in high storm water runoff catchment and causes a rainfall event to rapidly rise the river level, increasing the safety risk to people making the crossing. During the rainy