



## Manual Construction of a Suspension Bridge in a Developing Country: Nicaragua

Helena Turner, Ksenia Ivanova, Mike Green

*CH2M Hill, UK*

Contact: [helena.turner@ch2m.com](mailto:helena.turner@ch2m.com)

### Abstract

This paper discusses the technical and logistical challenges of construction of a bridge structure in a remote part of a developing country. Such challenges included delivering to a tight programme with limited use of tools and materials with the requirement to improvise and develop innovative solutions, whilst ensuring safety. Decisions are far more critical in this situation, as the cost and time for acquiring replacement tools and materials were inflated due to the poor transportation.

As well as constructability constraints, the need to have a long-life sustainable bridge was paramount. Much of the local community lacked the knowledge and skills to maintain the bridge prior to our arrival. Hence, in order for the bridge to withstand its 30-year design life with minimal intervention, team members collaborated with the local community; integrating them during construction and educating them about maintenance techniques.

**Keywords:** low-intrusive construction, low-intrusive maintenance, pedestrian bridge, sustainable, developing country, sustainable construction, manual construction, Nicaragua, Central America