

SAFETY STANDARDS OF TUNNELS IN COLOMBIA

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ABSTRACT

Safety in road tunnels has been standardized in recent decades in most developed countries (Europe, North America, Japan, Australia, etc..) in order to maintain tolerable levels of risk for their companies. The various laws and standards govern the constructive measures of civil works and safety installations, operation and the administrative and procedural safety assurance.

In developing countries which are now building major road infrastructure, road tunnels have become the backbone of strategic infrastructure in the land communications that enable the development of areas of difficult access. This is especially significant in countries in South America with rugged terrain because of the “Cordillera de Los Andes” (Colombia, Ecuador, Peru, Bolivia, Chile and Argentina).

In the case of Colombia highlights the tunnel of La Linea (Bogotá - Buenaventura), tunnels in the Ruta del Sol, the Tunnel of Buenavista (Bogotá - Villavicencio) and tunnels in the unfolding project of the carriageway in this road.

These infrastructures are a major investment effort for these countries; however do not have their own regulatory frameworks with safety requirements in road tunnels, so apply design criteria and safety of other countries. The conflict arises when the government and technical staff have to decide the standards and safety criteria to be applied, inevitably associated with increases in the construction and operation costs of the tunnels. The safety criteria must be consistent with the level of development of societies, establishing admissibility and tolerability criteria of risk for different types of activities, depending on variables such as risk aversion, the contribution to the society activity (eg on GDP, etc.). This paper aims to show how it has approached the improvement study of safety measures Buenavista Tunnel, through a risk assessment using quantitative analysis.

Personal safety and sustainability are concepts that are self-involved, so that a safety tunnel for people travelling on it, is socially sustainable infrastructure. The risk analysis of Buenavista Tunnel has studied the safety criteria in road tunnels, concluding that their degree of severity depends on the economic and social development of countries. The project provides a solution to fixing the criteria that this article explains.