

Comparative Study of Flood Plain Protection Zone Determination Methodologies in Colombia, Spain and Canada

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Abstract : Flood protection zones are riparian buffers that are formed to manage and mitigate the impact of flooding, and in turn, protect local populations. The purpose of this study was to evaluate the Guía Técnica de Criterios para el Acotamiento de las Rondas Hídricas in Colombia against international regulations in Canada and Spain, in order to determine its limitations and contribute to its improvement. The need to establish a specific corridor that allows for the dynamic development of a river is clear; however, limitations present in the Colombian Technical Guide are identified. The study shows that international regulations provide similar concepts as used in Colombia, but additionally integrate aspects such as regionalization that allows for a better characterization of the channel way, and incorporate the frequency of flooding and its probability of occurrence in the concept of risk when determining the protection zone. The case study analyzed in Dosquebradas - Risaralda aimed at comparing the application of the different standards through hydraulic modeling. It highlights that the current Colombian standard does not offer sufficient details in its implementation phase, which leads to a false sense of security related to inaccuracy and lack of data. Furthermore, the study demonstrates how the Colombian norm is ill-adapted to the conditions of Dosquebradas typical of the Andes region, both in the social and hydraulic aspects, and does not reduce the risk, nor does it improve the protection of the population. Our study considers it pertinent to include risk estimation as an integral part of the methodology when establishing protect flood zone, considering the particularity of water systems, as they are characterized by an heterogeneous natural dynamic behavior.

Keywords : environmental corridor, flood zone determination, hydraulic domain, legislation flood protection zone

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