

## EVALUATION OF VULNERABILITY IN WELLS OF THE CENTRAL VALLEY OF COCHABAMBA

Laura Rosales, Oliver Saavedra, Brayan López, Jhonatan Ureña

### ABSTRACT

In the central valley of Cochabamba, the increase in population and the growing demand for water for human consumption, industry and irrigation has led to an increase in the number of wells drilled, raising the risk of groundwater contamination. For this reason, it has been necessary to identify the vulnerability to aquifer contamination in a productive zone of the central valley of Cochabamba, for which the DRASTIC tool has been used. The method considers the combination of seven hydrogeological factors using GIS tools for which it has been fed with local and updated hydrogeological information. To obtain the vulnerability index, four scenarios were analyzed based on the weights assigned to each factor. The results indicate that the factors with the greatest impact are the depth of the static level, the geology of the aquifer, the impact on the vadose zone, recharge and soil type. The northern zone presents Medium High vulnerability because it is a recharge zone with deep wells, the central zone indicates High to Very High vulnerability due to the presence of emerging wells and agricultural activities, and the southern zone generally presents Low to Medium Low vulnerability because it is a discharge zone, urbanized, confined aquifers and deep-water levels. Therefore, it is recommended that greater emphasis be given to the northern and central zones, validate with hydrogeochemical studies, develop management plans, and use the proposed scheme in other zones of great hydrogeological interest.

**Keywords:** Groundwater, Vulnerability, DRASTIC, Central Valley of Cochabamba.

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