

RE-DEFINITION OF THE GROUNDWATER QUALITY MONITORING NETWORK IN THE ACONCAGUA VALLEY, V REGION, CHILE

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The quality of groundwater in Chile is being threatened as a result of intense exploitation and increasing industrial pressure. This has motivated the Dirección General de Aguas (Government Water Agency) to review the focus and effectiveness of the national groundwater monitoring network. This paper presents the methodology to review the effectiveness of the current system and a risk assessment completed to evaluate potential improvements to the existing monitoring network in the Aconcagua Valley, V Region, Chile. The risk assessment was based on a qualitative ranking scheme which included factors such as type and nature of contaminant sources within the valley, aquifer characteristics and soil characteristics. The results of the evaluation in the Aconcagua valley indicates that there is a high risk of contamination by nitrates, heavy metals and salinization associated with agricultural activities. There is also risk of contamination resulting from recharge to the uppermost aquifer from surface streams which receive poor quality water from wastewater treatment plants, light industries and mining related activities. Zones of highest vulnerability within the aquifer have been identified and ranked in order of risk. Based on the aquifer vulnerability and risk, 18 monitoring points have been recommended in order to observe the evolution of groundwater quality along the Aconcagua valley. Each monitoring point has been ranked in terms of its priority. In addition, a parameter list and sampling frequency has been recommended.