

The project took place in the IX Region of Chile, home to the largest Indian population of the country.

Two Cree technicians came to Chile to teach the Mapuches how to control the sanitary quality of their water supplies through simple and inexpensive methodologies. Over seven months, the Mapuches collected 548 samples from surface and well waters in two communities (Maquehue and Chol-Chol). A total of 543 samples (99.1%) were polluted with coliform and other faecal bacteria.

The Mapuches were then trained to filter and disinfect water at a household level and a sanitary education programme was carried out.

As a result of this programme, 1500 people from 343 Mapuche families living in rural areas are now able to treat water and control the safety of their drinking water. At present, the Maquehue's Community is working to extend this programme to the whole Community. These favourable results indicate that this could be a good model for improving the quality of life for people living in remote areas.

On the use of groundwater-driven health risk assessment in hazardous waste site management

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Management of contaminated sites is complicated by uncertainties and variabilities in physical processes and human behaviour. Although the subsurface geology may be relatively fixed, its spatial variability coupled with current scientific limitations does not allow its parameters to be identified exactly at all locations. This leads to statistical representations of the subsurface, which yield uncertainty about the migratory behaviour of contaminants travelling in the subsurface flowfield, and subsequent uncertainty of the resultant contaminants in downgradient municipal wells. Furthermore the individuals who might be exposed to this water have highly variable behaviour patterns.

In an attempt to lessen the difficulties of hazardous waste site management, a framework to assess the risks to individuals exposed to household water derived from contaminated groundwater has been developed. This framework specifically accounts for the effects of uncertainty in the subsurface geology and variability between individuals, in its prediction of human health risk.

A series of numerical experiments were undertaken using this modelling framework to answer common questions arising from hazardous waste site management. These questions cross-cut specific elements of the framework, and attempt to compare the relative importance of uncertainty in geological heterogeneity. The effects of increased site characterization on uncertainty in contaminant well breakthrough are then compared to the variability of the exposed individuals. The impacts of these notions on management choices are discussed.
