

Strategies for ensuring global consistency/comparability of water-quality data

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In the past 20 years the water quality of the United States has improved remarkably—the waters are safer for drinking, swimming, and fishing. However, despite many accomplishments, it is still difficult to answer such basic questions as: “How clean is the water?” and “How is it changing over time?” These same questions exist on a global scale as well.

In order to focus water-data issues in the United States, a national Intergovernmental Task Force on Monitoring Water Quality (ITFM) was initiated for public and private organizations, whereby key elements involved in data collection, analysis, storage, and management could be made consistent and comparable. The ITFM recommended and its members are implementing a nationwide strategy to improve water-quality monitoring, assessment, and reporting activities.

The intent of this paper is to suggest that a voluntary effort be initiated to ensure the comparability and utility of hydrological data on a global basis. Consistent, long-term data sets that are comparable are necessary in order to formulate ideas regarding regional and global trends in water quantity and quality. The author recommends that a voluntary effort similar to the ITFM effort be utilized. The strategy proposed would involve voluntary representation from countries and international organizations (e.g. World Health Organization) involved in drinking-water assessments and/or ambient water-quality monitoring. Voluntary partnerships such as this will improve curability to reduce health risks and achieve a better return on public and private investments in monitoring, environmental protection, and natural resource management, and result in a collaborative process that will save millions of dollars.

Community based water quality control

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A project of technology transfer of water quality control practices was instituted between two remote Indian communities: the Cree Nation from Split Lake in the north of Canada, and the Mapuche People in the south of Chile. The subject was an initiative from Canadian and Chilean researchers, funded by IDRC, Canada.

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.