



IAEA

Atoms for Peace: The First Half Century

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Identifying safe drinking water, Bangladesh

The challenge...

The main source of water in the Deltaic Basin, Bangladesh, is groundwater. However, much of this water is contaminated with arsenic. This has created a major public health crisis, affecting millions of people. The challenge facing this project is to identify a source of safe drinking water, and to protect it from degradation. The source of arsenic in Bangladesh groundwater is believed to be geological in origin, not anthropogenic.



The project...

The project has used isotope techniques to gather information on recharge conditions and the age of groundwater in the basin. It has opened up prospects for further investigations, also using isotope techniques.

One mitigation strategy is the development of deep groundwater as an alternative source of arsenic free drinking water. Isotopic “fingerprints” of shallow and deep groundwater were developed to determine the source and renewability of groundwater in the different aquifers. The isotopic information is critical in guiding Bangladesh policy of deep aquifer exploitation and is presently being used in a World Bank project for arsenic-free rural water supply.



The impact...

The project has helped the Government to find alternative, safe and sustainable sources of drinking water in the Deltaic basin. It has provided precise, scientific and low cost information to help guide decisions about managing water supply.



BGD/8/018: Isotopic and Hydrochemical Approaches in Understanding the Potential of Deep Aquifer as a Source of Safe Drinking Water in Deltaic Basin, Bangladesh