

## **Investigation of groundwater pollution and prevention measures in Zhanjiang City, Guangdong Province**

**ZUFA LIU<sup>1</sup>, TAO JIANG<sup>1</sup>, XIAOHONG CHEN<sup>1</sup>, XIAODAN CHEN<sup>1</sup>, HAIXIA YU<sup>1</sup>, JUN CHEN<sup>1</sup> & LUANSHENG SHI<sup>2</sup>**

<sup>1</sup>*Center of Water Resources and Environment, Sun Yat-sen University, Guangzhou 510275, China*  
[eeslzf@mail.sysu.edu.cn](mailto:eeslzf@mail.sysu.edu.cn)

<sup>2</sup>*Hydrology Bureau of Guangdong Province, Guangzhou 510150, China*

**Abstract** An investigation and assessment of groundwater pollution was made based on 23 shallow wells and 64 deep groundwater wells in Zhanjiang city. The results show that the groundwater pollution is comparatively severe in this city. Out of 87 wells, only eight wells have water quality of type 49-A (type Cl-Na). Among the 23 shallow wells, there are only seven wells with water quality of type IV, accounting for 30.4%; and 15 wells of type V, accounting for 65.2%. Of the 64 deep wells, 16 have water quality of type IV (25.0%); and 35 wells type V (54.7%). The groundwater pollution was mainly induced by a rapid growth of urban point-source pollution related to urbanization, an exacerbated non-point source pollution and groundwater deterioration directly resulting from the groundwater's overexploitation. On the basis of this, measures to protect the groundwater in Zhanjiang city were suggested, such as to enhance the management of point-source pollution, control the pollution along the river, recognise the importance of non-point source pollution, and develop and implement a manual re-irrigate and supply system.

**Keywords** groundwater pollution; pollution pathways; pollution control; Zhanjiang City

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