

PRESENT SITUATION OF WATER RESOURCES IN YIYUAN COUNTY AND COUNTERMEASURES FOR SUSTAINABLE DEVELOPMENT*

TANG HONGXIA¹ and ZHOU ZHIFANG²

¹ Doctor, Department of Geological Engineering, College of Civil Engineering, HoHai University, NO. 1 XiKang-Way, NanJing, China, 210098.

(Tel: +025-83787540, e-mail: tanghongxiagt@yahoo.com.cn)

² Professor, Department of Geological Engineering, College of Civil Engineering, HoHai University, NO. 1 XiKang-Way, NanJing, China, 210098

(Tel: +025-83787540, e-mail: zhouzfly@163.com)

Abstract

The groundwater resource of Yiyuan County in Shandong province was evaluated by finite element method, and the present using volume of surface water resource was calculated. At the same time, the present situation of water qualities of surface water and groundwater were qualitatively analyzed. The analyzing results show that the hydrochemical characteristics of the upper, lower and middle Yihe river and its tributary rivers change regularly. In upper Yihe river and this part's tributary rivers, the water quality is well. In middle and lower Yihe river, the water quality becomes worse gradually, the main contaminations have $\text{NH}_3\text{-N}$, Cr^{6+} , As, hydroxybenzene, cyanide, oil contaminant, suspended matter etc. The groundwater quality is well except the groundwater which recharged by the seriously polluted surface water.

The water resources (including groundwater and surface water) will not meet the water demand with sustainable development of Yiyuan County in the future. In order to resolve this problem, some measures are proposed. These measures include:

- (1) Building new water conservancy to improve the using efficiency of surface water;
- (2) Shutting off or deflating the size of the factories which discharge sewages into surface water to cut off the pollution sources;
- (3) Under the condition of without causing environmental problems, increasing irrigation water quantity by using polluted slightly surface water, and utilizing the purification function of soil to remove the harmful components; and so on.

By means of above measures, pollution remediation can be realized and the deficiency ofr water supply can be resolved.

Keywords: Groundwater resources; Water pollution; Purification capacity of soil; Sustainable development

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