Feasibility analysis of building underground freshwater reservoir in Ningbo Xianxiang Plain China

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Introduction and Method

The Ningbo Xianxiang plain which is surrounded by mountains and sea, is facing the issue of relatively lack of freshwater. Therefore the construction of underground freshwater reservoir at the area has significance [1,2]. Through the 1:50,000 hydrogeological survey in recent years, regional hydrogeological characteristics of Xianxiang Plain and surrounding areas have been basically ascertained.

Conclusions and recommendations

Through the comprehensive analysis of the regional hydrogeological conditions, it made clear that the first confined aquifer has a good construction conditions of underground freshwater reservoir(Fig 1). Firstly，the storage capacity of the 1st confined aquifer is about $0.72\times10^8 m^3$, and it's up to a medium-sized underground reservoir level. Secondly, the recharge area of upstream valley is large and has a considerable infiltration condition. Simultaneously，the mining of brackishwater-saltwater in the 1st confined aquifer will accelerate the evolution of the salt-freshwater interface, and realize the desalination of the 1st confined aquifer. So the construction of underground freshwater reservoir in Xianxiang Plain is suggested to be started as soon as possible. And it is also necessary to strengthen the environmental protection and the "sponge" construction in the upstream valley area.

Figure 1 Schematic diagram of building underground freshwater reservoir in the 1st confined aquifer

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[1] LI Wang-lin et al. (2006), *Journal of Hydraulic Engineering* 37(5),613-618. [2] Wallace,R.B et al.(1990), *Water resources Reserch* 26(6),1263~1270.