

# Ecological Flow Target and Guarantee Scheme of the Yongding River

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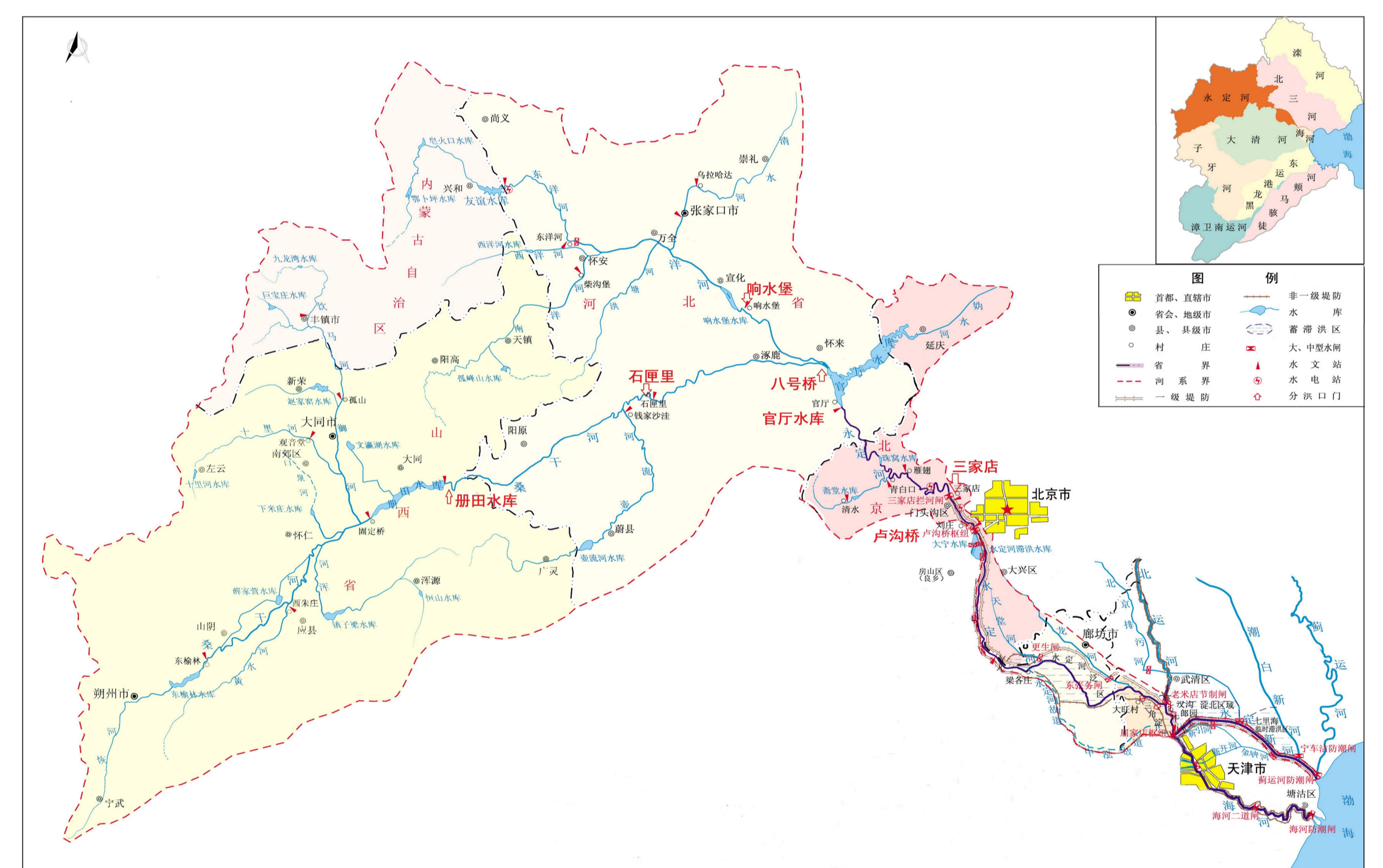
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## Abstract:

The Yongding River is an important water system in the Haihe River Basin, a natural corridor of the main ecological function areas of Beijing-Tianjin-Hebei, and the focus of the coordinated development of Beijing-Tianjin-Hebei in the ecological field. At present, the contradiction between production, living and ecological water use in the Yongding River Basin is very prominent. Problems such as river cutoff, wetland shrinkage, biodiversity damage, and ecological service function decline are still severe. Therefore, it is of great significance to clarify the ecological water quantity guarantee target of Yongding River, analyze the dispatching measures and put forward relevant suggestions in ensuring the ecological flow of Yongding River, repairing the structure and function of Yongding River water ecosystem, coordinating the optimal allocation of water resources in Yongding River Basin and promoting regional sustainable development. Based on natural runoff data, this paper uses Tennant method to calculate the ecological flow of the main control sections of Yongding River, compares the historical measured data of the sections to determine the ecological flow guarantee target of Yongding River, and proposes systematic and targeted ecological flow guarantee measures from the aspects of ecological flow scheduling, monitoring and early warning, supervision and assessment.

## Methods:

Based on the natural runoff data, the Tennant method was used to calculate the ecological flow of the main control sections of the Yongding River. The historical measured data of the sections were compared to determine the ecological flow guarantee target of the Yongding River, and systematic and targeted ecological flow guarantee measures were proposed from the aspects of ecological flow scheduling, monitoring and early warning, and supervision and assessment.



Yongding River Basin water system and important project distribution map

## Conclusions:

Combined with the hydrological data of nearly 40 years, the short-term target of Yongding River is calculated to be 3 % of the average natural runoff. In the mid-term, the comprehensive management and ecological restoration of Yongding River have all achieved results. After the basic construction of the green ecological river corridor, 5 % can be used as the ecological water guarantee target of Yongding River ; in the long run, after the implementation of the follow-up project of the East-Middle Line of the South-to-North Water Diversion Project and other measures, 10 % and 15 % can be taken as the ecological water guarantee target of the Yongding River after the balance of groundwater exploitation and replenishment is fully realized. In order to ensure the realization of the ecological flow target of Yongding River, the countermeasures and suggestions of ecological flow guarantee are put forward from the aspects of flow dispatching, monitoring and supervision, which is conducive to improving the ecological environment of Yongding River, coordinating production, life and ecological water allocation, and promoting the coordinated and sustainable development of Beijing-Tianjin-Hebei region.