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The basin-level water demand management driven by dualistic water cycle and the development of Dualistic Model for Hai River Basin

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Abstract: The basin water resources management (BWRM) is a coordinated project focused on the relationship between water supply and demand, which involves a united regulation and coordinated management process to maximize the benefits of available water resources, to improve the relationship between humans and water, and to develop economic systems and ecosystems. However, a water resources management system stresses different content depending on supply requirements, economic development and eco-environment protection policies in different social stages. At present, with high-intensity impact of human activities and natural precipitation reduction, contradiction between supply and demand water resources has become increasing prominent. Water shortage became a global problem. In limited supply condition water demand management becomes the focus of water resources management. However, since there is no need of technical support means, the present water demand management basically focuses on single linkages in the water cycle process, and falls short of investigation into the essence of water demand associated with the entire water cycle process.
For the above reasons, selecting Haihe River basin as study area, the paper fully analyzes the “natural-artificial” dual water cycle, put forward the water demand management with “the water consumption (ET) management as the core, the seven total amount control target as the management objective. Addition, the paper achieves the quantitative for "ET management as the core, the seven total amount control indexes” by the development of Haihe River basin-level Dualsitic model