

# Beijing Water Conservation Planning basing on Terminal Analysis and Demand Management

Beijing Municipal Institute of City Planning and Design, Beijing, 100045

**Project Name:** Beijing Water Conservation Planning Study

**Keyword:** Terminal Analysis; Demand Management; Objective Oriented; System Analysis; Simulating Model

**Participants:** HE Yong, LONG Ying, Guorui, ZHANG Xiaoxin, GUO Haibin, LIU Hong, ZHANG Yusen

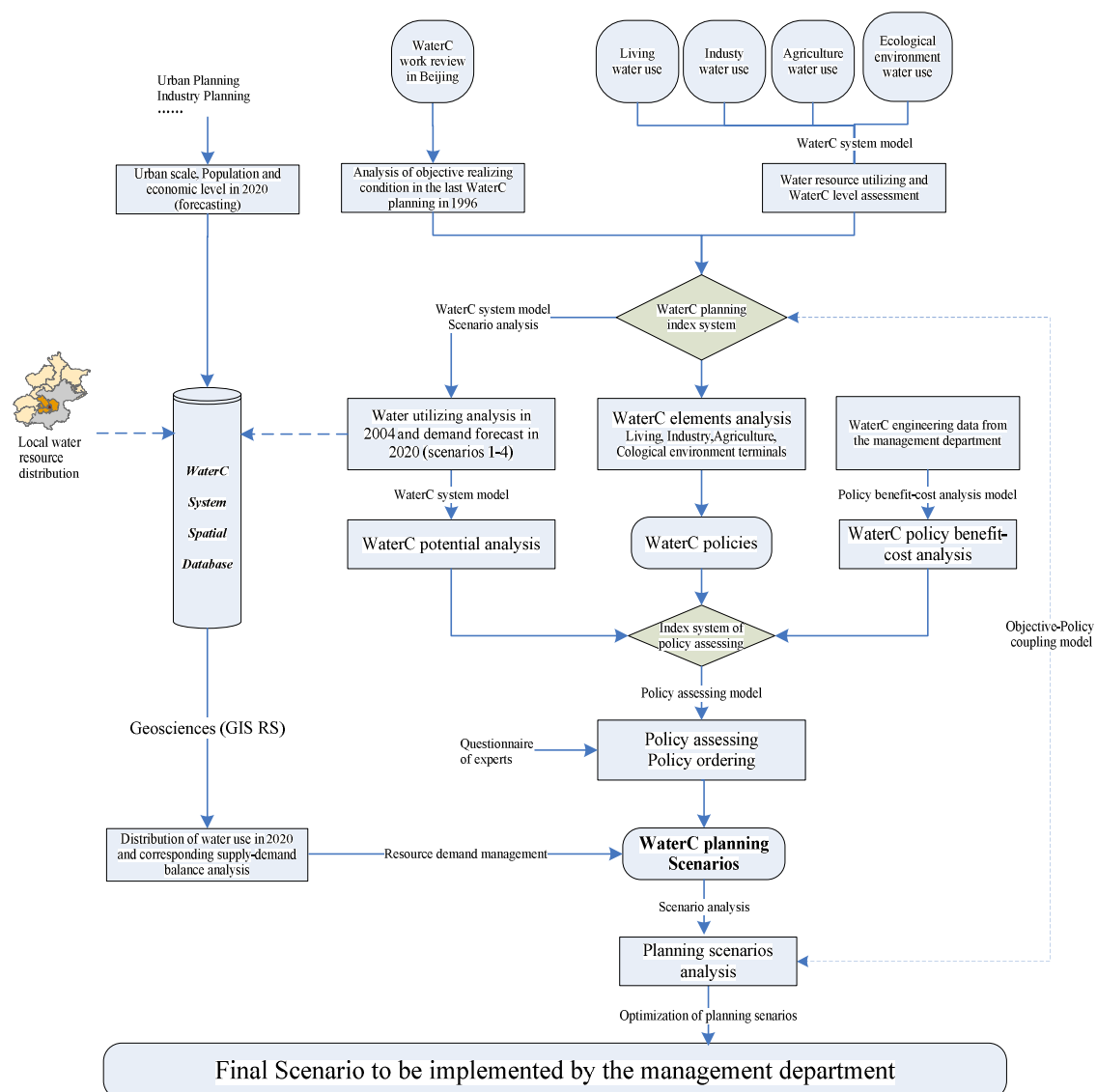
As one of the most water-lacking cities of the world, water resource quantity per person is less than  $300 \text{ m}^3$ , which is only 1/8 of country wide and 1/30 of worldwide. Is has been over exploited for years, and underground water exploitation reached 109% in Beijing plain areas, which shows that current living and producing manner could not support well recycling of underground water. For a long time the developing of Beijing city is based on immolation of ecological environment, and water resource shortage has been being the conflicting with modernization construction of the capital. Facing the 2008 Beijing Olympic Games, Beijing is entering a new developing phase. To guarantee the successful holding of the Olympic Games, it is the problem to be faced settled for Beijing that how to support capital economical social continuous and rapid development with limited water resource.

In theory water supply demand during Olympic Games could be solved by the construction of emergent standby water sources, and South-to-North Water Diversion may change the water resource lack fact in Beijing and other areas of China north. Nevertheless increasing the efficiency of water resource utilization is the basic method to settle the problem of water resource shortage, and also the basic measure to maintain water ecological system well recycling.

Terminal analysis and demand management are the main principles in the research. It is featured by systematic method, overall process analysis based on terminal analysis, spatial and cost-benefit analysis. Basing on worldwide research review of water conservation planning, water resource utilizing condition, water conservation work and water conservation nowadays level are analyzed thoroughly; The planning index system is rebuilt on the one of the last planning according to the water resource serious condition in 2020; Water resource demand forecast scenario of

2020 is confirmed by means of scenarios analysis; Water conservation potentials, such as industry structure reforming potential, strengthened water conservation policies potential and water reuse potential, are calculated separately basing on various water demand forecasting scenarios; Water conservation policies are selected after detailed analysis on water use terminals; Selected water conservation policies are assessed based on experts questionnaire and multi-attribute analysis, with the assessing index system; Recommending order of water conservation policies is listed after thoroughly assessing, and then the final water conservation planning scenario is established after the optimization of various policies coupling scenarios.

The figure below shows the detailed method in the research:



**WaterC:** Water Conservation in short

Main conclusions of the water conservation planning study: Quantity of local water resource is 3.4 billion m<sup>3</sup>. In the condition of not influent Beijing social and economic development, to keep balance of water supply and water demand in 2020, it must strengthen water conservation works based on current ones. Water conservation policies are divided into four classes, economic policies, management policies, technical policies and water-reuse policies. In condition of all policies implemented, 5.1 billion m<sup>3</sup> of water could be conserved totally from 2003 to 2020, with 51.3 billion RMB yuan investment. Finally it would be realized of the strategic objective of less than 30 m<sup>3</sup> per RMB yuan GDP.

By LONG Ying

2005.3