

**•Title: Practical exploration of improving water use efficiency
in coastal areas of northern China
---Weihai City, Shandong Province as an example**

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Objectives

China is a water-scarce country, especially in the northern region. How to solve the problem of rigid constraints on water resources in water-scarce areas in the northern coast, Weihai City has carried out beneficial practice and exploration, and achieved great results. Weihai is located at the easternmost tip of the Shandong Peninsula, surrounded by the sea on three sides, mostly seasonal independent rivers entering the sea, and the per capita water resources are only 585m³, far less than the critical value of 1000m³ necessary to maintain the economic and social development of a region. In order to ensure economic and social development, break the constraints of water resources, and improve the efficiency of water use, Weihai City combined with the characteristics of local water resources, put forward the idea of "saving water, storing water, transferring water South-to-North, desalinating seawater, using reclaimed water, and treating sewage".

Methods

Six water co-governance measures:

- 1) saving water: Publicize the concept of water conservation, and set up water-saving teaching practice bases for primary and secondary schools; Innovate and build a new model of "credit + water conservation", and incorporate water conservation work into the establishment of the social credit system; Take the lead in implementing the water manager system in the country, and form a replicable and generalizable water-saving management model.
- 2) storing water: New water conservancy projects will be built to make full use of stormwater resources and realize water system connectivity.
- 3) Passenger water: Relying on the planned southern route of the South-to-North Project, it connects major water systems such as rivers and reservoirs to achieve the overall allocation of water resources in the entire river basin.
- 4) desalinating seawater: Relying on the unique marine advantages, desalinated seawater is used as a safe, stable, long-term and reliable water supply source in Weihai City.
- 5) Use of reclaimed water: make full use of reclaimed water, and initially form a pattern of reclaimed water utilization of industrial enterprise reuse, ecological water supplementation, and urban miscellaneous use.
- 6) Sewage control: use advanced technology to conduct an endoscopic investigation of the municipal sewage pipe network, and continue to promote the zero of the urban rain and sewage combined flow pipe network.

Conclusions

•Then it was significantly improved the efficiency of water resource utilization, alleviated the rigid constraints of water resources on regional economic and social development. It has important reference significance for other similar water-scarce northern coastal cities to solve water resource constraints.