

## **Truth concealed behind “Zero Increase of Total Water Use” and coordination approach of socio-economic and eco-environmental water uses in the Weihe River Basin, China**

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**Abstract** The water resources situation in the water-stressed Weihe River Basin, China, is more serious now than ever before because of a decrease in water resources and socio-economic development. A “Zero increase of socio-economic water use” in recent years gives people a wrong understanding and conceals the water crisis in the basin because the socio-economic water consumption has actually increased. Water use for the hydro-ecological system has been greatly reduced by a decrease in water resources and socio-economic water consumption increase. New concepts of hierarchical water uses for every sector and water consumption control are suggested for coordinating water uses of the socio-economy and ecosystems in the water-stressed basin. The traditional water resources allocation and regulation in China usually set up a priority sequence for water use sectors. Generally speaking, domestic water use has the highest priority and a highest guarantee rate, followed by industrial water use, irrigation and lastly ecological water use. The concept of hierarchical water use for every sector is to distinguish the water use of every sector into minimum part, appropriate part, and expected extra part with different guarantee rates, and the minimum parts of all sectors should be first guaranteed. By applying a water allocation model, we compared the water allocation results of the traditional approach and the newly suggested approach. Although further study is desired, the results are believed to be of an important referential value to sustainable development in the basin.

**Key words** water use; Weihe River; socio-economic water use; eco-environmental flow