



## Agricultural planting structure optimization and agricultural water resources optimal allocation of Yellow River Irrigation Area in Shandong Province

Zhan-yu Zhang<sup>a</sup>, Hai-yan Ma<sup>a,b,\*</sup>, Qi-guang Li<sup>b</sup>, Xin Wang<sup>b</sup>, Gen-xiang Feng<sup>a</sup>

<sup>a</sup>College of Water Conservancy and Hydropower Engineering, Hohai University, Nanjing 210098, China  
Email: baby0807@163.com

<sup>b</sup>Water Resources Research Institute of Shandong Province, Jinan 250013, China

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### ABSTRACT

A model for agricultural water resources optimal allocation is established by taking the maximization of the net irrigation benefit as a target in this paper. The first level is partition subsystem, and at this level an optimal allocation model of water supply for different crops is established. The second level is the irrigation area overall system, and at this level an optimal allocation model of water supply for different partitions is established. This model is applied in Tao Cheng-Pu Yellow River Irrigation Area in Shandong Province to optimize the agricultural planting structure and the annual distribution of surface water and ground water in different periods. The results show that compared with present, the optimized net irrigation benefit increased about 23.7% and the optimization scheme is feasible, which provides a scientific basis for the adjustment of agricultural planting structure and the management of water in this area.

*Keywords:* Yellow River Irrigation Area; Agricultural planting structure; Agricultural water resources; Optimal allocation

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\*Corresponding author.

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