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## Long-term trends in intersectoral water allocation and crop water productivity in Zhanghe and Kaifeng, China

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**Abstract** This paper examines the trends in water allocation among sectors, water use by source, cropped area, crop production and water productivity. The study was undertaken at two sites in China: the Zhanghe Irrigation District in the Yangtze River Basin approximately 200 km west of Wuhan and Kaifeng City Prefecture located just south of the Yellow River in Henan Province. In both areas, water demand for purposes other than irrigation has grown. In the Zhanghe Irrigation District this resulted in a sharp reduction of water availability for irrigation. The decline of water availability for irrigation resulted in adoption of water saving practices and policies that led to a significant gain in water productivity per unit of irrigation water. In the Kaifeng City Prefecture the increased demand from other uses was met by an increase in groundwater extraction without the dramatic cuts in supplies for agriculture as in the Zhanghe Irrigation District. Gains in water productivity were due almost exclusively to higher crop yields. There will be continu-

ing pressure to further reduce diversions to agriculture from the Zhanghe main reservoir in the Zhanghe Irrigation District and from the Yellow River in Kaifeng. Research continues on testing practices that have the potential for further increasing water productivity, some of the results of which are reported in other papers in this volume.

**Keywords** Trend analysis · Crop production · Water saving · Irrigation · Water allocation · Water productivity · Hubei · Henan

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