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Water demand management and agricultural water use efficiency in China

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Faced with limited water supply and increasing water demands, how to deal with the serious conflict between the agricultural and ecological sector has become one big challenge in the Zhangye Irrigation District in the Heihe River Basin in Northwest China. Managing agricultural water demand and increasing agricultural water use efficiency are considered the main policy options to ease the water use conflict. In this paper we explore some practical water demand management measures and their impact on increasing water use efficiency. For this purpose, we conducted a field survey in the Zhangye Irrigation Districts in July 2009, covering 40 villages, 160 households and 95 surface and groundwater managers. Survey results show that from 2001 to 2008, collectively managed villages have been substituted by Water User Associations (WUAs). By 2008, 98 percent of villages were managed WUAs. In addition to this institutional change, Zhangye irrigation District also adopted several other measures, including water pricing policy, water tickets and water rights. Quantitative analysis show that among all these demand management measures, changing management institution, implementing water pricing and water rights policies have played significant role in increasing agricultural water use efficiency. How to extend the experiences and lessons on water demand management from Heihe River Basin to other regions is another challenge policy makers are facing.

Key words

Water demand management measures; agricultural water use efficiency; institutional change, water pricing, water rights, water tickets