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TITLE: THE ECONOMIC AND ENVIRONMENTAL IMPACT OF INVESTMENT TO WATER TREATMENT TECHNOLOGY WITH INTERREGIONAL INPUT OUTPUT ANALYSIS IN CHINA

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ABSTRACT:

It is essential for further economic growth to invest water treatment technologies (WTT) to control water consumption (WC) and water pollutant discharge (WPD) and develop additional water resource in China. The purpose of this study is to analyze economic and environmental impact when advanced WTT is applied to the region where WC and WPD are large due to the low adoption rate of WTT in China. The emission inventory included adoption rate of WTT is developed in terms of WC, COD, T-N, T-P in each sector and region. Also to consider regional economic situation, we have prepared for the inter-region input output table divided China into 30 provinces and classified 30 industrial sectors in 2002. Adopting water transport sector as investment choice, input coefficient and technical coefficient of an advanced WTT is estimated. To evaluate the impact of investment in monetary and material term (hybrid accounting), we have regarded these coefficients as exogenous variable in input output analysis. As a result of this study, we found as follows. Firstly, sectors with heavy WC and WPD have located in Central Region (Shanxi, Henan, Anhui, Hubei province). Technical coefficient of WTT and marginal costs to reduce WC and WPD in Central region is relatively low compared other province. Secondary interregional trade occurred from central region to North West (Shannxi, Ningxia, Gansu province), North coast (Hebei, Shandong province) and North municipalities(Beijing, Tianjin province) by a real water transport or a water right transfer. Therefore not only the investment of WTT in Central region will be reduce the WC and WPD in own region, but also the economic effect will spread to North West, North coast and North municipalities as supplying additional water resource.