

Article

# Rural Households' Willingness to Accept Compensation Standards for Controlling Agricultural Non-Point Source Pollution: A Case Study of the Qinba Water Source Area in Northwest China

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**Abstract:** Agricultural non-point source pollution (ANSP) has become one of the main sources of pollution in water source areas. An effective solution to this problem is the use of ecological compensation to encourage rural households to adopt agricultural pollution control measures. This study aims to answer two questions: How much compensation should be given to encourage rural households in water source areas to participate in ANSP control? What factors will influence their participation? In this study, paddy rice planting in water source area has been used as an example aiming to answer these questions. This study used the random parameter logit (RPL) model with survey data from 632 rural households in the Qinba water source area to empirically analyze rural households' willingness to accept compensation for ANSP control and the influencing factors of this willingness. From this information, the compensation standards for ANSP control in a water source area were calculated. The results show that (1) compensation had a significant incentive effect on rural households' willingness to control ANSP. The marginal compensation standard for reducing the use of fertilizer and pesticide was \$3.40/ha and \$2.00/ha, respectively. The compensation standard for not applying chemical fertilizer and pesticide at all was \$540.23/ha. (2) There was heterogeneity in rural households' preference for ANSP control compensation policies. Rural households characterized by younger residents, higher family income, higher perception of the ecological benefits, and higher perception of government policy were more willing to participate in the compensation policy. It is suggested that rural households showed a strong preference for ANSP control policies by considering both of their economic losses and ecological benefits. Our study contributes to the literature by enriching the evaluation method in providing references for the compensation of ANSP control policies

**Keywords:** compensation standard; water source area; agricultural non-point source pollution control; choice experiment