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## Welfare Economic Valuation of Sustainable Water Management and Land Use Strategies in Water-Scarce Regions: An Exemplary Study in NW-China

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### Abstract

The Tarim Basin in Northwest China is one of the most water-scarce regions in the world. Local ecosystems are extremely vulnerable and depend on water supply of the Tarim River, China's longest inland river. Due to unsustainable water use in the upper reaches the Tarim River dries out regularly in its lower reaches and the natural ecosystems have been seriously deteriorated. If the current water and land use scheme is not changed, the Tarim River might desiccate completely leading to the desertification of a region inhabited by 10 million people.

The Sino-German project SuMaRiO develops strategies for a more efficient water management and land use strategies in order to facilitate a more sustainable development of the Tarim area. Transfer payments from well-off regions, especially from China's megacities, to the relatively poor Tarim area will be needed in order to implement the measures under these strategies. However, it is not clear if such a public project is worth the costs. Therefore it is important to know the benefits accruing from the new water management and land use strategies to society as a whole.

Using the so-called Contingent Valuation Method (CVM) we assess people's preferences regarding the ecological consequences of a more sustainable water and land management in the Tarim area. In the paper proposed here, special attention is paid to the so-called nonuse values of natural ecosystems. Per definition, nonuse values can be perceived by people living on site and also by people living at a distance. We are therefore conducting CVM survey studies in the Tarim area (Alar) and in a Chinese megacity (Beijing). Results show that both groups of stakeholders appreciate environmental improvements in the Tarim Basin and that the majority of respondents is even willing to financially contribute to more efficient water management and land use strategies. We interpret willingness to pay in terms of the total economic value of the new strategies and suggest that for a rational decision on the practical implementation the overall social benefits should be considered and compared to the project costs.

**Keywords:** Contingent valuation method, total value, willingness to pay