

Abstract

Reliable estimates of water value are important for investment decisions in water resources development, sustainable water use policies, and water allocation in various sectors. Few studies have been performed to determine the relationship between irrigation water salinity and its economic value. The economic value of water is one of the most important factors for allocating water among various consumptions, also encouraging users to take necessary actions to increase investments related to improving of water productivity. There are several methods for economic valuation of water, that due to the producing role of water in irrigation of agricultural products, residual valuation method was used in this study for agricultural wells in Varamin County with a wide range of water salinity. The residual valuation method studies the economic valuation of water by analyzing the incomes and expenditures of farmers in the region and considers the final unknown as the value of water. In this study, lands related to 362 wells with an area of 7003 hectares were studied. The water value for the predominant summer crops (eggplant, cantaloupe, green beans, squash, cabbage and lettuce), wheat, barley and alfalfa were calculated as 208, 201, 175 and 30 plots of land, respectively. The average economic value of water for cucurbits, wheat, barley, and alfalfa were 2513.1, 5334.5, 1933.0 and 5647.6 Iranian Rials per cubic meters (IRR.m⁻³), respectively. The exchange price of water among the farmers in the study area was calculated as 5231.8 IRR.m⁻³, which was close to the calculated residual value for wheat and alfalfa crops. The coefficient of determination (R²) for the relationship of economic value and salinity of irrigation water for above crops was 0.806, 0.878, 0.865 and 0.702 respectively, which indicates that the main changes of economic value of water is related to salinity of water. According to the relationship between salinity and irrigation water value in the study area, the residual value of water was zero in the electrical conductivity of 3.61, 7.30, 6.05 and 8.24 dS.m⁻¹ for cucurbits, wheat, barley and alfalfa, respectively. As a result, the water pricing policy in the study area should be such that in water salinity, the selling price of water is lower than the current value, so that the farmers do not suffer losses or the choice of product should be based on greater resistance to salinity and its economic value.

Keywords: Water Economic, Water value, Irrigation water salinity, water productivity



University of Zabol
Graduate school

Faculty of Water and Soil
Department of Water Engineering

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Supervisors:

Dr. P. Afrasiab

Dr. M. Sabouhi

Advisor:

Dr. H. Ebrahimian

By:

M. Hassanli

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