

Monetary valuation of salinity impacts and microbial pollution in the Olifants Water Management Area, South Africa

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Abstract

This paper estimates costs associated with water pollution in the Olifants River Water Management Area (WMA) in South Africa, and, more specifically, the area represented by the Loskop Dam Water User Association. We focus on the impacts of salinisation on commercial irrigated agriculture, and of microbial pollution on the general population of the WMA, many of whom do not have access to municipal water and sanitation services, leaving them vulnerable to microbial pollution in the water resource. Costs associated with salinity are estimates based on the impacts of increased salinity on the value of marginal product of certain irrigated crops. Costs associated with microbial pollution are estimated based on the direct and indirect costs of human health impacts as a result of microbial pollution in the study area. These monetary value estimates give an indication of the magnitude of the cost of water pollution to society in the WMA. It is concluded that the once-off cost required to provide some pollution prevention infrastructure will be lower than the current annual cost burden of pollution on society in the WMA, and that pollution prevention is therefore cost effective.

Keywords: water pollution, costs, agriculture, society, pollution prevention