

Irrigated farming can play a great role to enhance agricultural development in Kenya, given that Kenya's economy is predominantly agricultural based and that about 80% of Kenya's land area is arid and semi-arid land (ASAL) where annual rainfall rarely exceeds 400 millimetres. However, irrigation tends to be carried out under intensive water use and low water use efficiency in many parts of the world, Kenya included. Household characteristics and subsidized or low water charges have been identified as a major contributor to intensive water use and low water use efficiency in irrigation. Therefore, characterization of farm households that irrigate and determination of efficient prices for irrigation water should be a prerequisite to formulation of appropriate water pricing in irrigation development policies. Taking the Ahero Rice Irrigation Scheme (ARIS) that is managed by the National Irrigation Board (NIB) in Kenya as a case study, this paper analyzes the characteristics of the household at the ARIS and critically evaluates the implications of economic aspects of rice production on the pricing of irrigation water at the ARIS. For production at economic optimum, average total cost (ATC) should be equal to average total revenue (ATR) or the average gross margin (AGM). This study estimated the total volume of water used in rice production at the ARIS at 5,679 m³ per acre per season, with the average total cost of rice production at the scheme being estimated at Ksh. 87,800 per acre per season. The cost of irrigation water accounts for about 44.65% of that cost of rice production. Given these figures, the residual value of irrigation water at the ARIS is thus Ksh. 39,202 per acre per season and this figure translates into a unit residual value of Ksh. 6.91 per m³, which is the economic value of the irrigation water used at the ARIS. Since the NIB levies a water charge of Ksh. 3,100 per acre per season to meet its costs of operation and maintenance of the ARIS, this study implies that the NIB water charge is about 12.65 times below the economic value of the irrigation water. This water charge reflects a relatively high level of water use subsidy which is inefficient and unjustifiable from an economic criterion. The NIB should thus raise its charge for irrigation water to a reasonable level relative to the economic value of that water to minimize the misuse of the water and improve water use efficiency.