Socio-Economic Factors and Water Footprint in Smallholder Irrigation Schemes in Zimbabwe

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Abstract

Despite the need to grow crops with low water consumption needs, given the increasing water stress across many regions of the globe, assessments of crop water footprint (WFP) values have not received significant research attention in Zimbabwe. This unique study is the first of its kind to assess the mediation effect between socio-economic factors and crop WFP among smallholder irrigation schemes in Zimbabwe. A total of 317 farmers from three schemes in Midlands Province in Zimbabwe participated in this study. The following were the main findings in terms of the examined variables: (1) Schemes ($p < 0.01$), Gender ($p < 0.05$), and Maint ($p < 0.1$) all decreased WFP_Maize; (2) education showed a reduction effect on the link between scheme maintenance and WFP_Maize; (3) secondary education has a higher impact on the magnitude of Maint on WFP_Maize; and (4) Maint and WFP_Maize have a positive correlation. This study illustrates the interaction of socio-economic factors on WFP and has substantial implications for simultaneously addressing the sustainable consumption of water for crop production, food security, and malnutrition in a changing climate.

Keywords: interaction; moderation; water footprint; water stress