

Abstract

Global climatic, demographic and economic changes affect “blue water” accessible in streams, lakes and groundwater under the effects of deforestation. Yet, two thirds of water resources referred to as “green water” are retained by plants for their own use. Their depletion has an impact on agricultural lands productivity. There is thus need for managing skilfully green water. A study conducted in Muooni Catchmentof Kenya assessed the need for Green Water Saving (GWS) in that area and its value-addition to the supply of crop water requirement. This paper illustrates the use of operational research to simulate the “Economic Order Quantity” (EOQ) and to cost green water supply in Muooni Catchment of Machakos District, in Eastern Province of Kenya. Results show that farmers’ water demand is more than their crop water requirement. They tend to use inefficient cropping methods and water management techniques that significantly increase their farming water losses. Considerable investments in GWS are thus needed to increase by at least 50% the one-tenth accessible blue water, and foster a green revolution in ASATs in general, and Muooni Catchment in particular. This may prevent water disasters and crop failures, as well as alleviate farmers’ poverty in these areas