

**Fresh water Demand in Rural Households and Ecological
Stability in Dry Lands: A Case Study of Lake Naivasha
Catchment**

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ABSTRACT

This study examined households' responses to water scarcity in the Lake Naivasha water catchment, Kenya. The main purpose of the study was to investigate the demand for water by households and how this influences the stability of ecologies in dry lands. The objectives included determining the factors that account for household water consumption, households' perception of water scarcity and their investments in water catchment improvements. The study also assessed changes in water demand over time and whether its explanatory components lead them to greater convergence or divergence. The study's sample was 418 household drawn from dry lands in Lake Naivasha catchment. Data was collected by survey method, which allowed extensive application of questionnaires and interviews. The data collected was on demand for fresh water resources as indicated by water use in the house and agricultural production. The study estimated water use in agricultural farms using water use efficiency rates of different crops provided by other studies. It also estimated household water use by depending on household sizes and the recommended per capita water use. A travel cost function was used making it possible to depend on water collection time as a proxy to household water cost. Respondents generated the required income information through a self-reporting method. Besides these two factors, the study collected information on the household's social environmental capital benefits as indicated by the proximity to roads, forests and Lake Naivasha. Data was analyzed using both descriptive and inferential statistics. Descriptive statistics entailed estimation of averages and percentages. Inferential statistics entailed the use of Ordinary Least Square (OLS) estimation and probit regression. The Statistical Package for Social Scientists (SPSS) was used as a device that aids data analysis. The findings of the study indicated that substitution of surface water use is present in Lake Naivasha catchment but this is moderated extensively by myopic perception of scarcity, memorylessness and risk averseness of respondents. The effect is that generally surface water abstraction in Lake Naivasha has perverse effects on the ecology of the dry land. Incomes are positively correlated to water consumption inter-spatially suggesting that improved wealth may not endear sustainability in the catchment's use of water resources. The recommendations made by the study are that society should impose charges for water at source so as to strength substitution effects. Such charges should take into account households' incomes and general private water rates of returns in order to be optimal. Further, the study recommends that government utilizes public sensitization as a policy to deal with increasing and unsustainable water use practices.