

Effects of Water Scarcity on Household's Livelihood in Selected Informal Settlements in Kitale Town, Trans Nzoia County, Kenya**Francis Mwaniki Nzioka and Nason Vundi**Degree of Masters in Development Studies (MDS) At St. Paul's University
Email: nziokafrancis52@gmail.com

Abstract: The purpose of this study was to investigate water scarcity and socio-economic effects on household's livelihood in selected informal settlements at Kitale town. The study was based on the following specific objectives: To identify the effect of water sources on household's livelihoods. The study was guided and informed by game theory and neoclassical theory. The research design adopted for this study was descriptive survey design. The targeted population for this study was estimated at 1600 individuals. 320 were selected as sample using Yemen formula and stratified sampling technique. Primary data was collected in this study was quantitative and qualitative. Data collected was analyzed by the use of descriptive statistics using frequencies, percentages, mean and standard deviation. The findings were presented using tables, pie charts and graphs. Inferential statistics were used to check the significance between and among variables. From the findings, majority of the respondents indicated that water drawn from shallow wells caused health problems. From the study findings, the study recommends that water sources should be protected and safeguarded since there was found to be a strong correlation between the water sources and the health of households, that proper water management should be carried out to make sure water reaches many household livelihoods and safeguard their health; All stakeholders especially the non state actors should invest heavily in water resources to cushion members of the public in informal settlements from water scarcity which impacts on their livelihoods directly and There is need to encourage water harvesting and storage in order to deal with the current water scarcity in the study area.

Keywords: Informal Settlement, Infrastructure, Household livelihood, Water management practices.

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Introduction

Water is our most precious resource. Humans, plants, and animals are made up of mostly water. According to the World Bank, (2010) report, water is a scarce resource with multiple interwoven uses that range from drinking water, energy, irrigation, manufacturing things, transport of people and goods among others. A lack of water has driven up the use of wastewater for agricultural production in poor urban and rural communities. More than 10%

of people worldwide consume foods irrigated by wastewater that can contain chemicals or disease-causing organisms (FAO, 2010). Water scarcity already affects every continent. Around 1.2 billion people, or almost one fifth of the world's population, live in areas of physical scarcity and 500 million people are approaching this situation. Another 1.6 billion people, or almost one quarter of the world's population, face economic water shortage (World Water Assessment Programme, WWAP, 2012). Every day in rural communities and poor urban centers throughout sub-Saharan Africa, hundreds of millions of people suffer from lack of access to clean, safe water. The implications of lack of clean water and access to adequate sanitation are widespread. Young children die from dehydration and malnutrition, results of suffering from diarrheal illnesses that could be prevented by clean water and good hygiene (Metwally *et al.*, 2006). Studies done in Kenya confirmed these general observations. For instance, households in the highlands of Western Kenya with improved access to water reported time savings, improved health, cleaner clothes, as well as increased production of tea seedlings, milk and vegetables (Were *et al.*, 2006). Water scarcity is the current struggle that Kenya faces; to supply clean water to its population. The human population depends heavily on water resources, not only as drinking water but also for crops, agriculture and livestock and fishing (UNEP, 2005). Water Governance Facility (WGF, 2012) explains that the most vulnerable in a world of greater water scarcity are poor people living in the informal settlements and those in rural areas whose livelihoods are dependent upon rain fed agriculture or the availability of grass and water for grazing animals.

Statement of the problem

Studies indicate that most of the world's 1.2 billion poor people, two thirds of whom are women, live in water scarce countries and do not have access to safe and reliable supplies of water for productive and domestic uses (IFAD, 2001). The bulk of these rural poor people are dependent on agriculture for their livelihoods and live in sub-Saharan Africa and South Asia, the regions which are also home to most of the world's water poor. Water scarcity is the current struggle that Kenya faces; to supply clean water to its population. The human population depends heavily on water resources, not only as drinking water but also for crops, agriculture and livestock and fishing (UNEP, 2005). Despite the fact The Constitution of Kenya, 2010 in Chapter 5, section 43 on economic and social rights, subsection (b) states that which states "Every person has the right to accessible and adequate housing, and to a reasonable standard of sanitation," accessibility to water which a key component in sanitation, the current water situation in Kitale town informal settlements is wanting. The area has scarcity of water supply in many times of the year leaving the community in this area to turn to unsafe sources like shallow wells and open streams for their water needs. This study therefore was geared towards finding out to investigate water scarcity and socioeconomic effects on household's livelihood in the informal settlements at Kitale Town.

Research Objective

To identify the effect of water sources on household's livelihoods in selected informal settlement at Kitale town.

Literature review

Access to Main Sources of Water Supply

Water is critical to human life and is undeniable fact hence without it; the dignity of human life is lost. Access to water sources means different things depending on the region. For instance, the concept as perceived in the developed world countries may not be the same as how it is defined in the developing countries. In the developed world countries, access to

water sources may imply having optimal access, that is, various taps inside the house, connected to a network, which is regularly maintained by the government authority. In the context of developing countries, access to water source is based on the UN's definition of 20-50 litres per an individual per day. According to Human Development Report (2006), having access to water sources is staying within one kilometer from the nearest improved water source.

Methodology of research

Research Design

Bhattacharjee (2012) articulates a research design as a comprehensive plan for data collection in an empirical research project which specifies the data collection; process, among other ingredients, of achieving the objectives of research project. This study applied a survey research design; Method that focuses on designing the data collection, analysis and reporting the findings in a descriptive manner (Kothari, 2014). The researcher conducted a descriptive survey in examining the socio-economic effects of water scarcity on selected households in the informal settlement; Kitale town. This was for obtaining adequate and relevant information within a short time. Quantitative techniques and frequencies were used for data analysis presented in charts and tables.

Data Collection, Instruments and Sampling Techniques

The study covered within the informal settlements in Kitale Town. The informal settlements were divided into four areas: Lavington, Lukhuna, Forkland and Shanti. The study targeted community and household heads. The study was on water scarcity and social economic effects on household in the selected informal settlement areas in Kitale Town. This study applied stratified and simple random sampling techniques. Stratified sampling was used to select a sample from the informal settlement dwellers. According to Oso and Omen (2005), stratified sampling technique is a technique that identifies subgroups in the population and their proportions and select from each village estate to form a sample. The researcher applied stratified simple random sampling to divide the population into stratus, and the required parameter was randomly selected from each stratum i.e. Shanty, Lavington, Lukhuna and Forkland. According to census of Kenya National Bureau of Statistics projection (2017), out of 1600 target Population, a sample size was identified and respondents selected after obtaining their consent to participate in the study. Simple random sampling technique was used to select 320 out of the target population. The 320 respondents were shared equally among the four villages hence each village had a sample of 80 households. To determine the household to be used for the sample, systematic sampling technique was used, where every fifth house from the first household, was picked.

Data Analysis

The data analysis was strictly based on the study objectives and research questions. After collection of all data, the researcher embarked on identifying incomplete or inaccurate responses, which was then corrected to clarify the quality of the responses. The collected data from questionnaires was sorted, edited, coded and analyzed using Microsoft Excel computer package for easy, fast processing and analysis. The researcher analyzed quantitative data from questionnaires using descriptive statistics, whereby data collected was subjected to frequencies and percentages, because it is easy to interpret, understand and compare frequencies. Simple descriptive statistics was also used to analyze quantitative data, which involved frequency counts and percentages.

Results of the Study

Water Sources management on Household's Livelihoods

From the findings, majority of the respondents indicated that water drawn from shallow wells caused health problems. On whether the springs were protected thus posing health hazards, majority did indeed agree and strongly agreed that many water sources in the study area was not protected. On the predictability of the water sources, again over a half of the respondents were in the affirmative. On whether the water sources made them sick all the time, majority disagreed meaning that they were not sure whether their sickness was due to water sources.

Conclusion

Based on the study objectives the study concluded there was a relationship between water sources and health of household livelihood and it concluded that water sources had an effect on household livelihoods.

Recommendations

Based on the findings, the researcher recommended the following:

Water sources and health of house hold livelihoods

From the study findings, the study recommends that water sources should be protected and safeguarded since there was found to be a strong correlation between the water sources and the health of households. Public health officers should carry out water safety measures from the shallow wells. There is need for the selected informal settlement to be upgraded especially with a focus of improving access to water supply. There is need to protect shallow wells and other water sources to avoid contamination. Closely related to this is the need for sensitization of the community on better hygiene especially hand washing practices to avoid spread of water related diseases. The responsible government institutions such as the ministry of Public Health and Sanitation need to ensure enforcement of the public health policies and laws in order to protect the people from being exposed to hazards such as contaminated water sources. Proper management of water resources should be prioritized in the area in order to improve on its accessibility. In particular, there is need for solid management in place. More funds should be directed towards repair and maintenance of water related infrastructure.

Areas for further Research

The following are suggestions for further research study: A study should be done to investigate determinants of unsustainable water resources in informal settlements in Kenya.

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