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SOCIO-ECONOMIC IMPACTS OF WATER SHORTAGE IN AFGOI DISTRICT

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ABSTRACT

Water is crucial for life since it is a major basic need and is also important for economic actions. Information on the challenges of water supply and its socio-economic impacts is important as it forms a fundamental baseline for the detection of the positive impacts, the main challenges related to it and how to cope and deal with them. This study investigated the challenges of water supply and its socio-economic impacts in Afgoi district.

To investigate the relationship between socio-economic impacts, identify the effect of poor system and find the challenges of increasing growth of population in water shortage guiding research questions were employed which investigated: causes of the watershorage, socio-economic impacts of water shortage in Afgoi district . Simple random sampling was used to select the Farmers and livestock and selective sampling for water providers. Sample population was 97. Questionnaires (Farmers and livestock and water providers),. Validity of instruments and reliability were tested by subjecting the instruments to a pilot study. Data was analyzed statistically and presented in tables.

Regression analysis was used to ascertain the predictive effect of causes of regression results on how Socioeconomic impacts of water shortage in Afgoi district, increase growth population, water system maintenance, low water pressure and socioeconomic impacts of water shortage in Afgoi district. The multiple regression equation was that: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$ and the multiple regression equation became: $Y = 0.2347 + 0.478 X_1 - 0.025 X_2 + 0.436 X_3$ As

There was positive and significant effect of increase growth population and Socioeconomic impacts ($\beta = 0.478$; $t = 5.761$; $p < 0.00$). There was positive and insignificant water system maintenance and socioeconomic impacts ($\beta = -0.025$; $t = -276$; $p > 0.00$). There was positive and significant low water pressure and Socioeconomic impacts ($\beta = 0.436$; $t = 4.975$; $p > 0.05$).

The results reveal that increase growth population in socioeconomic impacts, low water pressure and socioeconomic impacts have significant and positive influence and water system maintenance with socioeconomic impacts have insignificant and positive influence towards socioeconomic impacts in Somalia: a case of Afgoi district.. Standard multiple regression analysis was conducted for hypotheses testing (Cooper, 2013) in order to establish the best combination of independent (predictor) variables would be to predict the dependent (predicted) variable and to establish the best model of the study (Schindler, 2013).

1. INTRODUCTION

Water is a basic necessity for sustaining life and development of society. With the Increasing population including urbanization, economic growth, industrial production, agricultural and livestock production, demand for water has increased rapidly over the years so Increase in water demand has reduced water availability during dry seasons and has as well increased water conflicts in the watersheds. Unless properly managed, increasing demand of the scarce water resources by different sectors will strongly affect all users and the environment(Hussein, 2015). In communities where national, regional or municipal utilities are not providing sufficient or reliable electricity or water services, households depend instead on a wide variety of local providers. (J. Schwartz, 2005). In most developing countries, there is growing dissatisfaction with the public service delivery. Deficiencies in the coverage, access and quality of basic services and infrastructures such as water supply and roads are common (Paul, 1992; OECD, 2008). UNDP (2006), for example, indicated that there are around 1.2 billion people in the world who lack access to sufficient quantities of safe water. Like most countries in the developing world, African countries have major difficulty in providing effective and equitable public services (ECA, 2005b). More ever the management of water resources has become an object of study, discussion and formulation of proposals to contribute to food security, socio-economic development and the improvement of quality of life. It is related to the impact of climate change on water resources and the occurrence of extreme hydrological events is one of the main challenges of the twenty first century. In this regard, Africa is one of the most vulnerable continents to climate change, a situation that is aggravated by the interaction of multiple stressors, which occur at various levels, and low adaptive capacity. (UNESCO 2016.)

According to Baird, (2011) Poor access to basic services is a defining characteristic of fragile and conflict-affected (FCA) states. Basic services here are defined broadly (as in DFID 2009b) to include:

- a) social services such as health, education, clean water and sanitation;
- b) social protection – ranging from social safety nets to livelihood enhancing programs; and
- c) Security and justice.

However, many countries are increasingly using water faster than it is naturally replaced, resulting in water scarcity. Within the last two decades, international financial institutions have recognized that water scarcity is becoming a problem on a global scale and thus have announced their new water distribution strategy to prioritize efficiency(R. Curran,” 2006). Water resources are limited in Somalia both in quantity

and quality hence effective water allocation becomes particularly important as demand exceeds supply. Inadequate water resources management is the most important constraint towards addressing the vulnerability of Somalia to disasters due to adverse climatic conditions. Somalia is lacking know-how to properly manage its available water resources (Hussein, 2015).

So the poor management of water resources, the increasing competing water demand for livelihood and lack of strong administration and coordination among sectors is expected to exasperate the water scarcity challenges. This implies there is a need for proper water resources use and development. This requires empirical evidences on current and future water availability therefore this study will focus on socio-economic impacts of water shortage in Afgoi district.

According to Awualchew, Sally, Bahri, Molden, & Giordano, (2008) . however no doubt that irrigation and investment in water infrastructure have transformed the socioeconomic of many countries through increasing productivity, mechanization and modernization of agriculture, enhancing agro-industries, enabling green revolution, etc. The last 50 years have seen remarkable developments in water resources and in agriculture. Massive developments in hydraulic infrastructure have put water at the service of people. While the world population grew from 2.5 billion in 1950 to 6.5 billion today, the irrigated area doubled and water withdrawals tripled. More ever Water for domestic use is scarce for most of the residents due to under designed water supply systems and lack of corresponding planning and infrastructure development despite the growing population thus rely on unsafe water.(Karimi, 2016)

2. LITERATURE REVIEW

Drinking water is a basic requirement for life and a determinant of standard of living. Up to 70% of the Earth's surface is covered by water which is either surface or ground water. Water resources are very useful in various sectors such as; agricultural, industrial, household and recreational activities. Virtually all of these human uses require fresh water. 97.5% of all water on Earth is salty leaving only 2.5% as fresh water and the fresh water is a renewable resource, yet the world's supply of clean, fresh water is steadily decreasing. Water demand already exceeds supply in many parts of the world and as the world population continues to rise, demand of water also rises. Less than 1% of the world's fresh water (0.007% of all water on earth) is accessible for direct human use. This is the water found in lakes, rivers, reservoirs and those underground sources that are shallow enough to be tapped at an affordable cost (W. perpetu, 2015). Water is crucial for the economy. Virtually every industry from agriculture, electric power and industrial

manufacturing to beverage, apparel, and tourism relies on it to grow and ultimately sustain their business.(Morrison, 2009). Water scarcity occurs when there is inadequate water to satisfy the demand. Regions where water resources are abundant but demand exceeds the supply capacity of the natural system also experience water scarcity. Water scarcity can emerge or worsen when there is continues water imbalances, the groundwater is degraded affecting water quality, conflicts within nations and across nations over shared water resources and climate change (Ibrahim & Mensah, 2017).

However the leading cause of water crisis is mismanagement by government officials. In the World Water Vision Report which asserts that the water crisis faced today in many countries is not about having too little water to satisfy human needs, but, is a crisis of managing water so badly that billions of people and the environment suffer badly.(W. perpetu, 2015).

However Population growth, rapid urbanization, pollution and expansion of economic activities have put tremendous pressure on water resources in many countries. Traditionally, increasing demand for water has been met with supply augmentation programs, such as, new storage infrastructure, desalinization and recycling. More ever Increasing population and socio-economic development have put great pressure on water resources of the Yellow River (YR) basin. The anticipated climate and socioeconomic changes may further increase water stress. Many studies have investigated the changes in renewable water resources under various climate change scenarios, but few have considered the joint pressure from both climate change and socio-economic development (D.dharmaratna&JParasni 2010). However Sanitation and hygiene have made less progress, with 2.4 billion people lacking improved sanitation facilities. Equity in sanitation and hygiene access is of particular concern. Seven out of ten people without improved sanitation facilities, and nine out of ten people still practicing open defecation, live in rural areas; and a lack of these services often disproportionately affect women and girls, who can not only suffer health repercussions but personal danger when services are not available and not secure. Diarrheal diseases, long associated with poor water and sanitation, account for 1 in 9 child deaths worldwide, making diarrhea the third leading cause of death among children under the age of 5. Poor water, sanitation and hygiene are major contributors to neglected tropical diseases like schistosomiasis, trachoma and intestinal worms, which affect more than 1.5 billion people every year. (UN, 2017)

3. METHODOLOGY

This study investigated impacts of water shortage in Afgoi District and employed a descriptive

survey design. Descriptive survey according to Mugenda and Mugenda (1999) describes and determines a current situation. Descriptive research design is suitable for most sciences research because it reports things the way they are. The purpose of descriptive survey is also to observe, describe and documents aspects of a situation as it naturally occurs (Polit, 1995). It allows researchers to gather information, summarize, present and interpret information for the purpose of clarification (Orodho, 2002). As the study involves households, vendors and water officers, the study falls well in the descriptive survey study, The unit of analysis was some selected farmers, livestock and water providers by total of 3385 which were the target population comprised of the respondents from the sample survey. Simple random sampling and selective sampling were used to obtain a sample from a sampling frame of all the above selected study area. The sample size given that the target population was 3385 at a confidence interval of 90% and the error margin of 10 %, the sample population was 97 respondents. however Primary data sources were collected from Farmers, livestock and private water suppliers in Afgoi district.

Quantitative approaches were used for data collection. The data collection methods employed was interviews. The data collection instruments that were used were questionnaires. The data analysis was based on the study objectives and research questions. After all data was collected, the researcher identified incomplete or inaccurate responses, which were corrected to clarify the quality of the responses. The responses from the questionnaires were coded into statistical package for social sciences (SPSS) version 20.0 for analysis.

4. SUMMARY FINDINGS OF THE STUDY

The general objective of this study was examining socioeconomic Impacts of water shortage in somalia a case of Afgoi district . Specifically this study investigated the influence of increase growth of population, water system maintenance and low water pressure towards socioeconomic impacts of water shortage in Somali-Afgoi district. The study employed a cross-sectional research design in data collection. This research employed quantitative data collection method whereby data was gathered by the use of closed ended questionnaires which were self-administered. Factor analysis was used to assess the validity and Cronbach alpha to assess reliability of the questionnaire. Multiple regression analysis was performed to assess the relationship between the dependent variable (socioeconomic impacts) and the independent variables (increase growth population, water system maintenance and low waterpressure) Standard multiple regression analysis was conducted

for hypotheses testing (Cooper, 2013) in order to establish the best combination of independent (predictor) variables would be to predict the dependent (predicted) variable and to establish the best model of the study (Schindler, 2013). Results confirm the varying importance of examining socioeconomic Impacts of water shortage in Somalia a case of Afgoi district .. Finally the results reveal that increase growth population and low water pressure have significant and positive influence towards socioeconomic in Somalia: a case of Afgoi ditrict . while water system maintenance and socioeconomic have insignificant and positive influence towards socioeconomic in Somalia: a case of Afgoi ditrict.

5. RECOMMENDATION

Based on the findings of this study and the conclusions drawn, the following recommendations were made:

1. Further development of the assessment model towards Shebelle river is recommended in order to investigate the hydrological response and its consequences for the sake of the future water demand.
2. Water officers (from the private water suppliers) should involve the community to aid in water maintenance, development programmes and water provision projects. Members of the community should come up with other ideas to supplement the current water sources and make communal contribution to support that e.g. drilling more boreholes, wells and implementing any water conservation techniques that may be beneficial.

The households should embrace maximum use of roof water harvesting in most buildings so as to collect a lot of water during the rainy seasons.

The study mainly investigated the impacts of water shortage in Afgoi district. The researcher recommends further research on:

- i) The impacts of reduced water supply on other areas in the country other than Afgoi District.
- ii) The strategies being employed by the government to cope with the challenges caused by erratic water supply in Afgoi district and other parts of the country.
- iii) A case study of an area that has sufficient water supply to identify the associated factors.

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