

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

Assessing Funding and Accessibility to Water as an Agricultural Resource by the Rural Farmers in Uganda: A Case of Isingiro District, Uganda

Willy Turyahikayo

Ph.D. Student, Makerere University Business School, Uganda

Edson Kamagara

Ph.D. Student and Consultant, Uganda Management Institute, Uganda

Abstract:

Water is an important resource both for domestic and agricultural use but water funding from the central government is low leaving 24% of the population without access to clean water. The current study sought to find out the effect of funding on access to water resources from the perspective of users. Using a cross sectional data from Isingiro district in Uganda, the study found that the peoples' perception is that water provision and maintenance is the responsibility of government. The local population attributes lack of access to clean water for both domestic and agricultural use to inadequate funding from the central government. The local population is not willing to maintain even the few water points that have been set up by government and other non-governmental organizations. In terms of gender, women are more dissatisfied with water funding than men. The study recommends that the local population can be empowered to harvest water and be sensitized for proper maintenance and usage of the available water.

Keywords: *Water funding, water resources, water access, Uganda*

1. Introduction

Globally, water is an essential resource for the survival of humanity and necessary for life as it plays an important role in agricultural development and domestic consumption (Bill, Eldon & Fredrick, 2007). In Uganda, access to safe water is considered crucial for economic growth and development, good health, and an economically productive population, especially in rural areas, where 85 per cent of the entire population live (UBOS, 2014). While reflecting on the Millennium Development Goals (MDGs)¹ at the UN Assembly, the UN Secretary General noted that access to water resources is a fundamental resource that should not be compromised by nations (UN, 2011). The UN report further asserts that accessibility to safe water and sanitation is one of the prerequisites to economic growth and development given that it is a strong ingredient to agriculture either as naturally given through rain or artificially created through water based technologies. Available literature indicates that over time, provision of water resources for agriculture in most countries has been a challenge. It was estimated that by the year 2012, 783 million people constituting 11% of the global population had no access to an improved source of water whether for domestic or farm use with Africa having the lowest total water supply coverage of any region in the world (African Development Bank Report (2002).

According to a study by Habtamu (2012), access to the water resources is conceptualized as the extent to which the water accessed by living things is free from contamination including being free from chemicals, germs and bacteria that can affect the living organisms. According to Namara (2011) water is an important human welfare concept that should never be looked at in terms of its access but also its sustainability. Sustainability of water is further reinforced by Bill, Eldon & Fredrick (2007) when they argue that access to water is the extent to which the communities can obtain water for use with ease and continue to get it without disruptions. In all these scholars, access to water is only complete if communities are able to get water in a sustainable manner.

In terms of water for domestic use, people in rural areas are five times more likely to use poor water sources compared with their counterparts in urban areas. In fact, about 40% of the 768 million people without access to clean water are from sub-Saharan Africa. (WHO and UNICEF, 2012). In Uganda, people especially girls and women spend hours and a lot of energy to collect water compared to men and boys (WHO and UNICEF, 2000, 2012). Compared with men and boys, women and girls spend a lot of time and energy collecting water (WHO and UNICEF, 2000, 2012: 6–12, 31). This is because of the traditional stereotypes and cultures that place the burden of collecting water to the girl child and women. (Danert and Motts, 2009).

In Uganda, Civil Society budget Advocacy Group (CSBAG, 2011) noted that the communities suffer in looking for water and that this challenge mainly affects women who directly need water for domestic and farming purposes sine majority of farmers are women. According to the 2000-2015 rural water and sanitation strategy and investment plan, Uganda's principal investment document for rural

¹ The Millennium Development Goals have been replaced by the Sustainable development goals

water supply and sanitation notes that financing water resources for the rural sector has remained a challenge and will continue to be provided by external donors, the national government, and NGOs (African Development Bank, 2002). Funding water resources remain very important and the resource allocations will always determine the level of provision and access to water resource for domestic and agricultural use. Despite government's effort and commitment in improving the living conditions of the rural farmers through provision of safe water for domestic and agricultural use, there is still an outcry of lack of safe water for both domestic and agricultural use. Various policy documents such as the Water Statute (1995) and the National Water policy (1999) have been put in place focusing on community based water management systems for sustainability of water facilities. Community capacity building interventions like community mobilization, formation of water and sanitation committees and training of stakeholders have been part of water projects implementation to ensure effective access and sustainability to the water resources. Districts are mandated to plan for the well-being of their people under the decentralized framework, oversee implementation of development projects and water and sanitation committees are expected to prepare plans and budgets incorporating operation and maintenance aspects of available water resources (MWE,2013). Even with this decentralized framework, access to water resources for agricultural and welfare development in Isingiro district is still very low. As a result, the area has of recent experienced extreme famine that has led to loss of both human and animal lives. The current study sought to find out the extent to which funding water resources has affected the accessibility to water resources used for domestic and agricultural use in rural areas and show whether there are gender differences in terms of peoples' perception on water funding and accessibility.

2. Materials and Methods

The study adopted a cross sectional survey research design that employed both quantitative and qualitative approaches that are supported by (Amin, 2005). A cross-sectional survey design enabled the collection of Quantitative and qualitative data to ensure that the weaknesses of one method are compensated by the strengths of the other and vice versa as encouraged by Mugenda (2003). Through random sampling, one parish comprising of 340 households was selected. Using Morgan and Krejcie (1970) a sample of 181 was selected. The actual response however was 126 representing a response rate of 70%. The households were selected using systematic sampling where the K^{th} element was used to select a household after the first household was selected at random as supported by Ochieng (2009). Focus group discussions were held with parish chiefs, the sub-county officers and water user committee members who are concerned with the establishment of water facilities in the communities.

Primary data was collected from respondents through the use of questionnaires. The study used questionnaires to collect quantitative data because they are generally acceptable instruments (Punch, 2006 & Barman, 2008). After the data was collected, the researchers cleaned, edited it for completeness, accuracy, and uniformity, elimination of errors, double checking for missing or inconsistency entries and comprehensiveness. Data was then analyzed using Statistical Package for Social Sciences (SPSS) by generating descriptive statistics including percentages and frequencies which were used to make comparisons from responses. Pearson product Moment correlation was used to determine the relationship between funding and access to the water resources as an agricultural input whereas ANOVA test were conducted to compare groups such as sex and age on variables such as their level of satisfaction with water resource funding.

3. Presentation of Findings

3.1. Demographic Characteristics

The information on age, gender and education was important for the researchers to determine the respondents' ability to participate in the study and provide reliable data for a rich and complete report.

Variable	Category	Frequency	Percent
Gender	Male	89	70.6
	Female	37	29.4
	Total	126	100.0
Age	21-29	16	12.70
	30-39	38	30.16
	40-49	44	34.92
	50 and above	28	22.22
	Total	126	100.0
Level of Education	Non formal education	30	24.0
	Primary	58	46.0
	Secondary	12	9.5
	Diploma	18	14.3
	Degrees	8	6.2
	Total	126	100.0
Period the respondent has stayed in the area	Less than 1 year	4	3.2
	1-3 years	6	4.8
	4-6 years	28	22.2
	over 7 years	88	69.8
	Total	126	
Marital status	Married	98	77.8
	Single	11	8.7
	Widowed	14	11.1
	Divorced	3	2.4
	Total	126	100.0
Source: Primary data			

Table 1: Background information of the respondents

Table 1 above indicates that majority 70.6% of the respondents were males while 29.4% were females which indicated that both sexes participated in the study.

The study further examined the age distribution of the respondents in which it was revealed that majority of the respondents (34.92%) were between 40 to 49 years. These were followed by 30-39 years (30.16%), 50 and above (22.22 %) while 21-29 age categories had the least number of participants. The above statistics indicate that most of the respondents were mature enough to provide reliable data for the study. The study also analyzed the level of education and helped the researchers to design the data collection approach. The results on respondents' education level indicated that majority (46%) of the respondents had studied up to primary level while 24% had no education. This was because the study was carried out in a rural setting where the majority had not had access to formal education. On the other hand, 14.3% had completed ordinary diplomas while 9.5% completed secondary whereas only 6.2% of the respondents had completed the first degree. In terms of marital status, results indicated that majority of the respondents were married comprising (77.8%). Only 8.7% were not married and the rest had either lost their spouses or divorced.

3.2. Funding and Access to Water in Isingiro District

The relationship between funding and accessibility to water resources was ascertained using the Pearson product moment correlation coefficient in which the variable of funding was tested along the dependent variable accessibility to water resources as presented in Table 2.

		Access	Funding
Access	Pearson Correlation	1	.422**
	Sig. (2-tailed)		.000
	N	126	126
Funding	Pearson Correlation	.422**	1
	Sig. (2-tailed)	.000	
	N	126	126
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 2: The test of the relationship between funding and accessibility to safe water

The results in table 2, indicate a Pearson value of 0.422 at 0.000 level of significance. This indicates that there is a positive relationship between the funding and accessibility to water. This further means that with appropriate and adequate funding, people perceive that accessibility to water is likely to improve. The percentage explained by funding in accessibility to safe water was established by establishing the coefficient of determination which (r^2) which was established to be 0.187. This means that the percentage of water access explained by funding was 18.7% as shown in table 3.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.063	.847		28.402	.000
	Funding	.187	.036	.422	5.189	.000
a. Dependent Variable: Water access						

Table 3: Regression analysis

As can be observed in Table 3, the results indicated a Beta value of 0.422 which indicates that there is a relationship between the funding and access to water. This is true because the calculated probability (0.000) is less than the predetermined probability of 0.05 which according to Amin (2005) indicates a relationship.

An independent samples t-test was conducted to compare the satisfaction with water funding scores for males and females. Results indicated that there was a significant difference in scores for males (M=33.78, SD=7.141) and females (M=30.74, SD=7.684). This is because the **sig. (two-tailed)** value is 0.043 which is less than the cut off value of 0.05

	sex of respondents	Mean	Std. Deviation	Std. Error Mean
Total Staff Satisfaction Scale	Female	33.78	7.141	.789
	Male	30.74	7.684	1.318

Table 4: Group statistics and Independent samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Satisfaction with water funding	Equal variances assumed	.372	.543	2.044	114	.043	3.045	1.489	.095	5.996
	Equal variances not assumed			1.983	57.840	.052	3.045	1.536	-.029	6.120

Source: Primary data

A one-way between-groups analysis was conducted to explore the impact of age of the respondents on their satisfaction with water resources funding. Respondents were divided into four age categories (21-30 years, 31-40 years, 41-50 years and over 50 years). Since $p=0.916$, there was no statistically significant difference at the $P<0.5$ level for the four groups. The post hoc multiple comparisons using the Tukey HSD test indicated that the mean scores for all the groups were significantly different.

Satisfaction with funding scale						
		Sum of Squares	df	Mean Square	F	Sig.
Between Groups		30.288	3	10.096	.171	.916
Within Groups		4794.701	81	59.194		
Total		4824.988	84			
(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
21-30	31-40	.938	2.816	.987	-6.45	8.32
	41-50	.921	2.405	.981	-5.39	7.23
	over 50	-.500	2.777	.998	-7.78	6.78
31-40	21-30	-.938	2.816	.987	-8.32	6.45
	41-50	-.016	2.293	1.000	-6.03	6.00
	over 50	-1.438	2.680	.950	-8.47	5.59

41-50	21-30	-.921	2.405	.981	-7.23	5.39
	31-40	.016	2.293	1.000	-6.00	6.03
	over 50	-1.421	2.245	.921	-7.31	4.47
over 50	21-30	.500	2.777	.998	-6.78	7.78
	31-40	1.438	2.680	.950	-5.59	8.47
	41-50	1.421	2.245	.921	-4.47	7.31

Table 5: ANOVA and Multiple Comparisons
Source: Primary data

The two-way between- groups analysis of variance was conducted to explore the impact of sex and age on satisfaction with water funding. The interaction effect between age and sex was not statistically significant ($p=0.516$). The main effect for age did not reach statistical significance ($p=0.786$). However, the main effect for sex reached statistical significance ($p=0.033$) at $p\leq 0.5$.

Dependent Variable: Satisfaction with funding scale						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	419.114 ^a	7	59.873	1.046	.406	.087
Intercept	65025.102	1	65025.102	1136.422	.000	.937
sex	270.416	1	270.416	4.726	.033	.058
age	60.740	3	20.247	.354	.786	.014
sex * age	131.659	3	43.886	.767	.516	.029
Error	4405.874	77	57.219			
Total	97456.000	85				
Corrected Total	4824.988	84				
a. R Squared = .087 (Adjusted R Squared = .004)						

Table 6: Tests of Between-Subjects Effects

4. Discussion

The study examined whether people perceive the funding for water is the main cause for its low accessibility in the study area. The results indicated that the relationship was significant at a Pearson value of 0.422 that was calculated at a 0.000 level of significance. This important finding is in agreement with scholars in various studies. For example Namara (2011) noted that it is not easy and is almost impossible to factor out the aspect of funding from water provision. He noted that the provision of water for communities is a costly undertaking and that this gives a reason as to why it has remained a government investment in Uganda with no private investors except a few NGOs and faith based organizations. These views relate closely with those found out in the current study especially when the majority of the respondents revealed that provision of water facilities is the responsibility of the government and not private individuals. The results of the current study father relate to those that were revealed by Samantha, (2011) on water crises in Kenya in which it was found out that poor community management and failure to fund water resources was one of the causes of water crisis in Kenya. It was found out in the current study that community members are not willing to participate in funding water projects. Therefore, community members believe that it is the duty of government to finance water sources development and are therefore not willing to fund water on behalf of the government.

Although the RWSH report (2003) discovered that funding for water mainly comes from bilateral and multilateral donors, Non-Government organizations (NGOs) and from community contribution, the current study finds a difference in the perceptions of the respondents because they tend to think that the NGOs and donors are also invited by the government. Whatever the source of funding, the rural community members consider the problem of water access as a result of limited financing by the government. The results show that funding by the government was very important for sustainable water bodies to support the agricultural sector. The community members did not believe it was part of their responsibility to provide infrastructure and maintain the existing water points but instead hoped for an increase in the accessibility of water by the government. This study notes that without the active involvement of the community members, it will be hard to provide adequate water resources to support the agricultural sector. The study found that only a few members of the community had put in some effort to get access to water.

In view of the current study together with those of previous scholars, we draw that funding for water is an important ingredient for agricultural development and household welfare.

In terms of gender, the study revealed that although there is general lack of satisfaction with water funding, women are more likely to be dissatisfied with water funding than men since the effects of lack of water are more visible for them. This owes to the fact that the majority of farmers are women and they are responsible for household activities that require water. However, the post hoc multiple comparisons using the Tukey HSD test indicated that the mean scores for all the age groups were significantly different implying that age is not an important factor in satisfaction in determining whether the population is satisfied with water funding. This is because lack of water for any use affects all people of all age categories. The two-way between- groups analysis of variance which was conducted to explore the impact of sex and age on satisfaction with water funding was not significant which again implies that the gender of the respondent does not affect the relationship between age and the perceived access to water funding.

5. Conclusion and Recommendations

The study has shown that people perceive that there is a significant relationship between funding and access to water resources by the rural agricultural farmers in Uganda. The amount of funding is highly perceived to determine the quality and quantity of water provided and the number of people likely to access the water source.

From the study we recommend that there is need to increase the conditional grants for rural water development. We recommend that the communities be sensitized about the need to participate in the provision of water resources within their communities. It was discovered that majority of the community members were not interested in contributing to water development through maintaining water facilities whenever called upon. People were even not ready to contribute to maintenance of the already existing water points. Hence there is need for increased community sensitization to contribute to development and maintenance of water facilities.

5.1. Conflict of Interests

The authors declare that there is no conflict of interest. They are independent researchers.

5.2. Acknowledgement

The authors would like to thank DAAD and RUFORUM for facilitating their studies and research. Special thanks also go to Makerere University Business School for creating an enabling environment for research.

6. References

- i. African Development Bank Report (2002). Report on water and sanitation in African. 2nd (eds.) Social Dimensions of Climate Change: Equity and Vulnerability in a Warming, Addis Ababa-Ethiopia
- ii. Amin E.M (2005). Social science research: Conception Methodology and analysis. Kampala, Uganda. Makerere University Printery.
- iii. Bill W, Tillery, F, Eldon D and Fredrick, C (2007). Integrated Science and Technology in Water Management: Jos Publications, New Jassej.
- iv. Civil Society Budget Advocacy Group (2011), An Evaluation of Social Service Budget implementation: Challenges and Strategies for improvement. Kampala Uganda.
- v. Hall, J and Fagen, P (1956). The African water Crisis; The role of governments- a Working Frame work in Progress: Tanzania water Development Committee report, Arusha.
- vi. Habtamu Addis Beyene (2012) Factors affecting the sustainability of rural water supply system.
- vii. Millennium Development Goals report (2012) African Water Association International, Nairobi-Kenya.
- viii. Morgan, Krejcie (1970), determining sample size for research activities, Educational and psychological management. Motivation and development (pp.399-429). San Francisco: Jossey-Bass.
- ix. Mugenda, O.M. and Mugenda A.G (2003). Research methods: quantitative and qualitative approaches. Nairobi: Acts Press.
- x. MWE (2013). Water and Environment Sector Performance Report. Kampala: Ministry of Water and Environment.
- xi. Namara (2011). Challenges in sustaining rural gravity water flow schemes in Kabale district: Un published Dissertation: Makerere University.
- xii. Ochieng Fred (2009). Gate way to Research Methodology. Fountain Publishers, Kampala Uganda
- xiii. Punch, S (2006), Barman, H (2008). Overcoming the Water needs in the developing World: A crisis in abundance, a paper presented to the UN Conference on Climate Change: Beijing China.
- xiv. Uganda Bureau of Statistics (2013). National Population and Housing Census, Kampala Uganda.
- xv. United Nations Report (2011) Monitoring and Evaluation of water and sanitation in rural areas and small towns water provision in East Africa, Nairobi, Kenya.
- xvi. WHO & UNICEF (2000, 2012). Progress on Drinking Water and Sanitation: 2012 Update. New York: World. Washington, D.C: World Bank.