

Stakeholders Engagement and Water Provision in Arid and Semi-Arid Lands in Kenya

Mohamud Mohamed Gedi¹, Michael Ngala¹ & Leonard Wambua¹

¹School of Management and leadership, Management University of Africa, Nairobi, Kenya

Correspondence: David Wolf II, School of Management, Northern Canada University, Toronto, ON., M3A 2K7, Canada. Tel: 1-613-947-3592. E-mail: davidwolf@gc.ca

Received: January 15, 2018

Accepted: February 13, 2019

Online Published: February 19, 2019

doi:10.5539/ijbm.v14n3p49

URL: <https://doi.org/10.5539/ijbm.v14n3p49>

Abstract

With the onset of devolution in Kenya, county governments in Arid and Semi Arid Lands (ASAL) which is least developed and with high poverty index in the Country had a chance to correct the situation since devolution provided an opportunity for enhanced community participation, planning and ownership of projects. The purpose of this study was to establish the influence of stakeholders' engagement on water provision in Arid and Semi-Arid Lands in Kenya. The study used positivism research orientation. Cross-sectional survey research design was adopted. The target population entailed the 113 sub-counties in ASAL where a sample of 89 sub-counties was targeted. Questionnaire was used in collecting primary data. Secondary data collection was done via desk study. Data collected was first checked on the level of response before actual data analysis was undertaken using IBM SPSS version 24, Microsoft Excel and MS Word. Content analysis was adopted in analysing qualitative data while quantitative data analysis entailed computing descriptive statistics (frequency, percentage, mean, standard deviation); and inferential statistics (correlation analysis, analysis of variance and regression analysis). Stakeholders' engagement was found to have significantly effect on provision of water services. All the parameters of water provision were found to have improved as a result of stakeholders' engagement.

Keywords: stakeholders engagement, water provision

1. Introduction

Water provision is indicated by physio-economic accessibility. The ease of physically accessing the water facilities including the safety and adequacy of these resources constitute the physical component of water provision. At the same time water is required to be within the physical reach by every part of the population or at least within the visibility (Kaushik, 2011). Jones et al. (2002) insulated that, physical accessibility to water is indicated by the households spending less time to identify the infrastructure and using the saved time on other productive activities such as household chores.

Stakeholder engagement is simply those practices that an organization undertakes in the interest of increasing the participation of the stakeholders in an affirmative way in organizational activities (Greenwood, 2007). Devolution of water services was meant to provide counties with an opportunity to provide clean, safe and reliable water for both its residents and animals, as counties are better placed to understand the needs of her people.

With the onset of devolution, county governments of previously marginalized communities in ASAL had a chance to correct the situation since devolution has enhanced community participation and planning that outline priority areas of intervention in line with their community's specific needs at the county level. Miriti and Keiyo (2017) stated that, devolution has led to improved stakeholders engagement in the management of resources through participation in major decision making in counties as well as strengthening the accountability of county resources. Moreover, effective implementation of the new devolved framework now requires the water sector to focus on the emerging opportunities and to address a number of challenges to achieve sustainable delivery of improved water services under the new dispensation through involvement of beneficiaries.

While there is evidence that devolution through stakeholder engagement has improved conditions in ASAL, more evidence needs to be analyzed to determine the full extent of impact and for this the researcher consider

water provision, a sector inadequately addressed by passed studies. For instance, a study by Peprah, Oduro-Ofori and Asante-Wusu (2015) in Ghana investigated provision of water in Awutu-Senya East Municipality, Ghana. The study, it was showed that, individuals' contribution on daily water production amounted to 64.2% with public water provision effort constituting 35.8%. Despite this, 45% constituted salty water with 28% being contaminated and impure. This study was not done in Kenya and did not consider cover ASAL.

In Kenya, Wagah, Onyango and Kibwage (2010) studied accessibility of water services in Kisumu municipality. The findings showed that although 77.1% of household could access piped water only 25% accessed the minimum recommended amount. At the same time, low-income households were the most affected by poor accessibility to water. However, Kisumu is not demarcated as an ASAL thus making the study inadequately assess the actual influence of devolution to the marginalized communities. Given that there are limited studies that have investigated the issue of devolution of water services in ASAL, there is a dearth of insights to understand the concerns put forward. To address this gap, this study explored the interplay between devolution of water services through stakeholder engagement and water provision in ASAL areas in Kenya.

This paper was guided by the following null hypothesis hypothesis:

HO: There is no significant relationship between stakeholders' engagement and water provision in Arid and Semi-Arid Lands, Kenya.

2. Method

This section explained the methodology to be applied in this research.

2.1 Research Design

Research design according to (Kayunze, 2003) entails mainly acceptance of circumstances suitable in collecting as well as analysing data by combining their nexus with the research to the economy of procedures. From Kothari's (2004) view, it is the guide for execution of the research method and subsequent analysis of acquired data. The research design helps the researcher to devise a plan to tackle the various process and tasks required to conceptualize a plan of operation and tasks required for the completion of the study being undertaken. This study applied a cross-sectional survey as its research design. This is because the variables under study were measured as naturally perceived without manipulation or control. According to Cooper and Schindler (2003), the research design is appropriate if the study is concerned with finding out what, when, and how much of phenomena. Cross-sectional studies concerned with finding out "what is" might be applied to investigate research questions. The main goal of this type of research is to describe the data and characteristics about what is being studied.

2.2 Population

The population for this study was 113 sub-counties in Arid and Semi-Arid lands in Kenya. According to the Ministry of Planning and Devolution Report (2016), there are one hundred and thirteen (113) sub-counties demarcated as Arid and Semi-Arid Lands (ASAL) and distributed within 23 counties in Kenya. The Ministry further categorises the 113 sub-counties into Arid (36 sub-counties in 8 counties) and Semi-Arid (77 sub-counties in 15 counties).

2.3 Sample and Sampling Technique

A sample is a small proportion of targeted population selected. In cases where a census (a survey of the entire population) is impossible, sampling procedures provide a justified option (Kothari, 2004). In this regard sampling of the ASAL Sub-Counties was done using the Slovin's Formula (as used by Ariola, 2006). The formula is expressed as $n = N / (1 + Ne^2)$

Where: n is sample size; N is the population size and e is the tolerance error. The confidence level gives the margin of error; in this formula, it ranges from 95% to 99% implying a tolerance error of 0.05 and 0.01 respectively (Ariola, 2006). The current study used a 95% confidence level implying a 0.05 tolerance error. Therefore, using Slovin's Formula, the sample size was calculated as: $n = 113 / (1 + 113(0.05)^2) = 88.11 \approx 89$ sub-counties

Proportionate sampling was then used to allocate the proportion of the sample size going to each of the 23 counties. Kothari (2004) noted that proportionate sampling is used when a population from which sample is to be drawn does not constitute a homogeneous group. Proportionate sampling involves dividing the population into a series of relevant proportions which implies that the sample is likely to be representative. Sub-counties which form our population are characterized by heterogeneous groups, given that some fall in Arid Lands while others are in Semi-Arid Lands. Proportions for this study were effectively applied at county level where the number of sub-counties in each county formed the proportion of sample size going to the county. Random sampling was

then applied to select sub-counties. The proportions used were computed as $\text{Proportion (P)} = \text{Sample Size} / \text{Total population} = 89/113 = 0.787611$. Each sub-county is headed by a Sub-County Water Officer hence the number of sub-counties in ASAL equals the number of Sub-County Water Officers. The total number of respondents was therefore eighty nine (89). This ensured a naturally heterogeneous but relatively homogeneous sample as recommended by Saifuddin (2009).

2.4 Data Collection Instruments

According to (Kothari, 2004) data are facts presented to the researcher from the studying environment. This study used questionnaire to collect primary data. Secondary data on the other hand was collected through desk study.

2.5 Data Collection Procedure

In this study, primary data was collected through and questionnaires. The researcher trained four research assistants who were engaged in collecting primary data. Secondary data was collected by the researcher himself from records on water provision and related issues. This was done by first seeking authority from the relevant county and sub-county authorities in ASALs. For purposes of collecting data in this study, the questionnaires were administered to the relevant respondents in the institutions.

2.6 Validity and Reliability Tests

For this study, pretesting of the questionnaire was done through piloting to ensure its reliability and consistency. The fundamental importance of piloting is to examine the viability of the anticipated method to be used in the main research (Leon et al., 2011). In general, a 10% to 20% of sample size for the main study is recommended for piloting (Osama & Issa, 2015). In this regard, piloting was conducted on nine sub-counties within ASAL but who were not covered in the final study. This constituted 10.11 percent (9/89) which was adequate for the purpose piloting for this study. In essence, the pre-test helped provide real questionnaire tests as well as its mode of administration. For that reason, it enabled the shortcomings of the instruments to be identified and predict the extent of non-response likely to take place. The clarity of the instrument items to the respondents was necessary so as to correct inconsistencies arising from the instruments, which ensured that they measure what was intended. The pilot data was not included in the actual study.

Data collected was first checked on the level of response before actual data analysis is undertaken using IBM SPSS version 24 and Microsoft excel. Those whose level of response was found to be adequate were assigned numbers for coding into the computer. Then the data collected was subjected to qualitative and quantitative analysis. Content analysis was applied in analysing qualitative data and categorized into themes in line with the study objectives. With respect to this, the quantitative data was categorized according to subject concept of the objectives of this study. The organized data was then interpreted in the light of the research problem to be addressed and used to enhance the quantitative findings.

Quantitative analysis entailed computing descriptive statistics like the frequency and percentage for the quantitative data. Measures of central tendency were also used in which case the mean and the mode were not computed. At the same time, measures of dispersion were computed particularly the standard deviation. Inferential statistics were all applied on the quantitative data where correlation analysis, analysis of variance (ANOVA) and regression analyses were done. Presentation of findings was done using tables, pie charts, bar graphs as well as histograms for interpretation, summary and conclusions. In conducting the regression analysis, simple and multiple linear regressions analysis were done, in which case, the regression was done at different levels.

3. Results

Results were presented based on the two variables, that is, stakeholders' engagement, and water provision

3.1 Stakeholders Engagement

Table 1. Descriptive Level of Stakeholders' engagement

	Not at all	Low extent	Moderate extent	Great Extent	Very great extent	SUMMARY			
						Mean	Median	Mode	Standard Deviation
Devolution of water services in the county has enhanced the rate at which county government engages local residents to actively participate in water provision decision making processes	.0%	16.2%	23.0%	41.9%	18.9%	3.64	4.00	4.00	.97
Devolution of water services in the county has led to increase in the number of water management companies	31.1%	20.3%	29.7%	12.2%	6.8%	2.43	2.00	1.00	1.24
Devolution of water services in the county has enhanced the rate at which County government engages members of county and national assemblies to actively participate in water provision decision making processes	4.1%	18.9%	27.0%	32.4%	17.6%	3.41	3.50	4.00	1.11
Devolution of water services in the county has enhanced the rate at which county government engages professionals to give valuable advice on emerging efficient water provision techniques and mechanisms	6.8%	21.6%	37.8%	18.9%	14.9%	3.14	3.00	3.00	1.13
Devolution of water services in the county has enhanced effectiveness with which issues concerning water provision are communicated to all stakeholders involved	.0%	18.9%	33.8%	32.4%	14.9%	3.43	3.00	3.00	.97
Devolution of water services in the county has led to the development of supportive legal frameworks under active participation of all stakeholders	10.8%	17.6%	45.9%	20.3%	5.4%	2.92	3.00	3.00	1.02

Table 1 indicates the descriptive level of stakeholders' engagement. From the findings, devolution of water services was found to be highly enhancing the rate at which county government engages local residents to actively participate in water provision decision making processes with mean of 3.64, median of 4.00, mode of 4.00 and standard deviation of 0.97. Respondents, nonetheless distressed that devolution of water services in the county has led to increase in the number of water management companies (mean = 2.43, median = 2.00, mode = 1.00 and standard deviation = 1.24). Study findings also indicate that the county leaderships have to a moderate extent been engaging members of their respective county and national assemblies as well as professionals to actively participate in water provision decision making processes including seeking valuable advice on emerging efficient water provision techniques and mechanisms.

3.2 Descriptive Statistics on Water Provision

Water provision was based on the average distance in Kilometers covered by a resident to access the nearest water point, average cost in Kenya Shillings incurred by a resident to access a 20 liter jerican of water, quality of water accessed by residents expressed as a percentage, reliability of water access by residents expressed as a percentage and salinity of water accessible by the residents expressed as a percentage. Other aspects considered included frequency in water treatment expressed as a percentage as well as the clarity of water used by the residents expressed as a percentage.

Table 2. Descriptive statistics on water provision

Aspect	Mean		Difference in Mean	Sig. of the difference
	Before Devolution	After Devolution		
Average distance in Kilometers covered by a resident to access the nearest water point	9.41959	5.27067	4.14891	0.0000
Average cost in Kenya Shillings incurred by a resident to access a 20 litter jerican of water	16.0135	10.4283	5.5851	0.0000
Quality of water accessed by residents expressed as a percentage	49.1216	58.3851	9.2635	0.0000
Reliability of water access by residents expressed as a percentage	47.2716	59.7972	12.5256	0.0000
Salinity of water accessible by the residents expressed as a percentage	33.9486	32.5297	1.4189	0.0000
Frequency in water treatment expressed as a percentage	45.6283	51.3648	5.7364	0.0010
Clarity of water used by the residents expressed as a percentage	56.8918	66.5675	9.6756	0.0000

From the findings displayed in Table 4.5, all the parameters of water provision were found to have improved after involvement of stakeholders. Nonetheless, reliability of water access by residents was found to have been the most improved with a positive mean difference of 12.526 percent and a p-value of 0.0000. Closely following was clarity of water used by the residents expressed (9.676% and p-value of 0.0000) and quality of water accessed by residents expressed (mean difference = 9.264, p-value = 0.0000).

On the other hand, those services that were found to have the least improvement included average distance in Kilometers covered by a resident to access the nearest water point (mean difference = 4.149%, p-value = 0.0000) and salinity of water accessible by the residents expressed as a percentage (mean = 1.419%, p-value = 0.0000). Average cost incurred by a resident to access a 20 litter jerican of water, as well as frequency in water treatment were found to have improved by 5.585% and 5.736% respectively with p-value of 0.0010. This implies that water provision has significantly improved after stakeholders were involved particularly in terms of distance covered, cost, quality, reliability of water access, and frequency in water treatment as well as clarity of water used.

3.3 Tests for Normality

Normality of data on water provision was tested using One-Sample Kolmogorov-Smirnov Test and Normal Q-Q plot

Table 3. One-Sample Kolmogorov-Smirnov Test

N		74
Normal Parameters ^a	Mean	9.6129
	Std. Deviation	3.37640
Most Extreme Differences	Absolute	.090
	Positive	.061
	Negative	-.090
Kolmogorov-Smirnov Z		.776
Asymp. Sig. (2-tailed)		.584

The difference between the observed distribution and a perfectly normal one is checked based on a p value. If the p-value is less than 0.05, the distribution is significantly different from a normal distribution and might be cause

for concern. If it is 0.05 or higher, there is no significant difference from normality. As shown in Table 3, the data for devolution of water services was normally distributed as p-value was greater than 0.05 for water provision with overall p-value using Kolmogorov-Smirnov normality index being $0.776 > 0.05$.

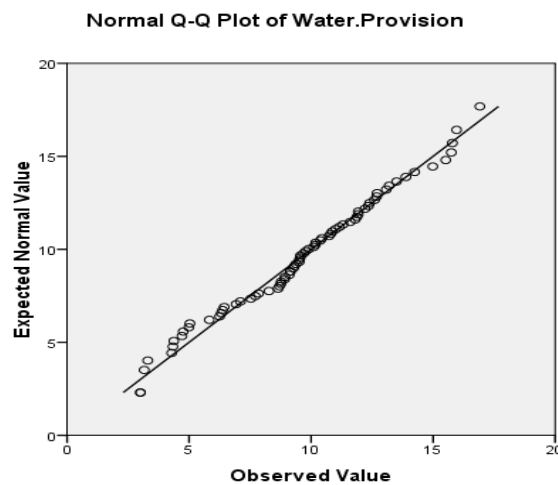


Figure 1. Normal Q-Q Plot of Water Provision

The output of a normal Q-Q plot was used to determine normality graphically. If the data are normally distributed, the data points will be close to the diagonal line. If the data points stray from the line in an obvious non-linear fashion, the data are not normally distributed. As shown in Figure 1, the data is normally distributed.

4. Findings and Discussion

4.1 Stakeholders Engagement

Study findings revealed that stakeholder engagement has a positive and significant relationship with water provision. These findings echo those by Wachira (2014), which asserted that although there is stakeholders' engagement in water provision services, it is rarely recognized by the local people. In addition, according to Greenwood (2007), he argued that the nexus between stakeholder engagement and responsibly treating stakeholders is, thus, simplistic. Considerably, various scholars revealed contending views on the suitable motivation, the mode and style of engaging the stakeholders that has ended up in the materialization of better consciousness of the necessity to re-visualize the function of the organization and the nature of its activities.

The findings, nonetheless, though County governments in the ASALs are trying their best to involve stakeholders in water provision, this has not fully attained the utmost requirement of stakeholder engagement. Stakeholder Engagement involves practices that an organization undertakes in the interest of increasing the community participation in an affirmative way in organizational activities. There needs to be ethical grounds for the inclusion of honesty, openness and a respectful engagement of stakeholders as a crucial tool in the firm's strategy (Phillips & Noland, 2010). Moreover, a study by Gambe (2013) on water provision in Harare, Zimbabwe indicated that residents were yearning for involvement in the process of finding solutions to water problems bedeviling Harare. They felt sidelined and this caused a vinegary relationship between the residents and city fathers.

Findings in this study further confirm those of Wachira (2014) on challenges and prospects for effective water conservation in Mwingi North District, Kitui County, Kenya. The study showed that there is stakeholders' engagement in water conservation though it is not recognized by the local people. A few of them were aware of some NGO's that were involved in community water projects but most of them did not know any of them by name. The stakeholders' engagement showed efforts to provide water projects and also offer community awareness to the community. In addition, Cherunya, Janezic and Leuchner (2015) explored sustainability of supplying water that is safe for drinking where it is underserved focusing on devolved solutions in Kenya. From the study, majority of households often obtained water from different sources. Households largely perceived the sources of water to be unsafe for drinking forcing them to chlorinate or boil the drinking water. Nonetheless, it was found that majority of households in Kenya did not consistently treat drinking water.

It emerged that County governments have made considerable efforts to ensure stakeholders are involved in water

provision services. One of the officers described it as “*Good progress.*” Another officer asserted that there is “*Good involvement of residents and water boards in decision making.*” Explaining the situation in one of counties, a respondent argued that “*we have developed water management development committees and they are functional.*” These assertions point out that in some counties, the county leaders have made some efforts by creating some platforms to engage the community in water provision. In some cases however, one of the respondents highlighted the sidelining of technical staff by expressing that “*Public participation has been upheld in the county but involvement of technical staff has not been to a great extent.*” In one of the counties that have made efforts to engage the stakeholders, one of the officers asserted that “*their engagement is very resourceful.*” This implies that where stakeholders’ engagement is done, it greatly enhances the effectiveness in water provision.

In most counties, the respondents indicated that there is adequate stakeholders’ engagement. One of the officers complained that: “*Currently the county government is doing their programs what much involvement of the communities. There is deliberate effort being made towards their direction.*” This was echoed by another officer whose opinion on stakeholder engagement was that “*It is still very slow.*” Another officer added that “*Though they are engaged, little from their opinion is importantly considered.*” The implication is that some of the county governments shun stakeholders’ engagement in delivery of services. This is despite the gist of devolution which is to bring services closer to the constituents.

Respondents nonetheless appreciated the effort put by County Governments towards the need for stakeholders’ engagement and need for deliberate effort in community participation. One of the respondents made an outright suggestion that there was need for “*Improvement of engagement of stakeholders.*” This was echoed by another one who expressed that “*There should be more engagement of stakeholders by the county government.*” In the opinion of one of the officers, “*There must be thorough and proper engagement on how projects and other water services are to be conducted.*” According to one of the respondents, “*Inclusiveness of all stakeholders will make most water services decision at the ground level and it becomes a bottom up approach.*” This implies that most of the county governments in ASALs need to take measure that will enhance stakeholders’ engagement in their delivery of services to the constituents.

According to one of the respondents, “*Stakeholders are better placed in conservation and sustainability and, therefore, should be engaged completely.*” One of the officers added that “*They hold the best information as they are the consumers and their input is important.*” This was echoed by another officer who said that, “*They hold the vital information as they are the end users and need to be engaged.*” On the same note, another respondent pointed out that “*They play a major role and decisions made directly affects them and therefore they should be greatly involved.*” Even so, one of the officers critiqued that, “*Technicians' advice should be given a priority since they have the technical knowledge as opposed to local community leaders who play politics more.*” A general statement from one of the respondents was that “*We need stakeholder engagement for precise and effective decision making.*” This implies a paradox that the importance of stakeholders’ engagement is well recognized in the county governments, yet it has not been enhanced.

Suggestions were also made on how the stakeholders’ engagement can be enhanced. One of the officers suggested that, “*Stakeholders should be engaged from the identification of water projects to the implementation.*” Another one suggested that it should be enhanced “*through citizen forums and right watch groups.*” This was echoed by another officer who recommended that “*A water stakeholder forum should be established which should be meeting regularly to address all water issues.*” In his opinion, one of the chief officers was categorical that, “*The engagement of public participation must start from ward level through sub-county to county level especially prioritization of project implementation.*” Another one added that the county governments “*...should put in place supportive legal frameworks for easy participation of all stakeholders.*” In his opinion, one of the water officers suggested that “*The water officer should be the entry point of all water activities to be carried out within the county.*” Another one opined that “*The stakeholders to be meeting quarterly to share experience and plans.*”

4.2 Findings on Water Provision

Findings were expressed in terms of the mean difference and significance level

a) *Physical Accessibility of Water*

To access the nearest water point before devolution, 45.9% of the residents covered an average distance of approximately 5km or less compared to 74.3% who cover the same distance after stakeholders were engaged. This indicates a probability that after devolution through stakeholders engagement, more water points were established within a close proximity to the residents. Moreover, 8.1% of residents covered the longest

distance (over 20km) to access the nearest water point before devolution, compared to 1.4% who covers the same distance after devolution. This further implies that devolution through stakeholder engagement has helped to reduce the average distance that majority of the residents in ASALs have to cover to access water. This fulfils the aspect of physical accessibility requirement in water provision which according to Kaushik (2011), entails the presence of water sources within a reasonable physical reach by the population in terms of distance, hence time. The findings further meet the aspect that physical accessibility to water should be characterized by spending of less time influenced by short distance to the water infrastructure, thus saving time for other productive engagements (Jones et al., 2002).

Access to water and management of water resources are among the main drivers of change in the ASALs. Improving water access and resources management opens new areas for drylands production and can increase carrying capacity of the rangelands, if strategically placed and managed. Drylands fodder and crop production is also promoted and is generally seen as one, intervention, among others, that can contribute to resilience of people living in the drylands. Improved water access and better and more strategic management of water resources can be an effective contribution to positive drivers of change with positive impact on poverty reduction and increased productivity in drylands production systems. Access to water also promotes businesses linked to ASAL production and linked to services for the ASAL populations. Drylands economic potentials can be unlocked with positive impact on green growth.

The engagement has a strong focus on reaching the poorest segment of society and of impacting positively on domestic and productive needs of the ASAL communities. Water service needs are relevant to all sections of society in the ASALs, including particularly the poorest of the poor. WSTF and the counties will target investments to the neediest areas and the actual investments will be implemented following guidelines that seek to ensure benefits also to the poorest in the respective investment areas. Community involvement will be in focus and capacity development in water planning and implementation will be provided to counties and implementing agents. Promoting indigenous knowledge through community participation will enhance sustainability through ownership at grassroots level.

b) Affordability of Water

Before devolution and engagement of stakeholders, 51.4% of the residents incurred an average cost of Ksh 10 and below to access a 20 liter jerican of water compared to 64.9% who incur the same cost after stakeholders were engaged. Similarly, the proportion that incurred an average cost of more than Ksh.10 to Ksh.20 increased from 28.4% (before devolution) to 32.4% after devolution. Moreover, the proportion of residents incurring the highest cost (of over Ksh.40) to access the water reduced from 5.4% before devolution to 1.4% after devolution. The implication is that devolution through community participation has helped to lower the cost of accessing water in ASALs. This is in line with the recommendations by Peprah, Oduro-Ofori and Asante-Wusu (2015) that it is critical to have a mechanism that regulates water provision to ensure a reduced and reasonable price is charged on water so as to avoid exploitation, and to protect the interest of citizens especially in the rural areas. Moreover, the findings imply that stakeholder engagement has helped to minimize the problem of water companies taking advantage of the poor by establishing water kiosks selling water at high prices. This according to Wagah, Onyango and Kibwage (2010) is due to a culture among these companies of perceiving the poor as unattractive 'investment' who prefer to meet daily water costs as opposed to monthly bills.

c) Quality of Water

Before devolution through engaging stakeholders, 36.5% of the residents accessed water whose quality was greater than 40% to 60% compared to 31.1% who accessed this type of water after devolution. Water with a quality of greater than 60% to 80% was accessed by 10.8% of the respondents before devolution compared to 24.3% of them who accessed it after devolution. Similarly, the highest water quality (over 80%) was accessed by 12.2% of the residents before devolution compared to 17.6% after devolution. On the other hand, the least quality water (20% and below) was accessed by 14.9% of the residents before devolution compared to 6.8% who accessed this type of water. The findings imply that devolution has managed to enhance accessibility to high quality water in the ASALs, by increasing the proportion of residents accessing the high quality water in these areas. Frone and Frone (2013) maintain that water accessible for consumption should be of good quality that poses little or no threat to a person's health.

d) Reliability of Water Access

The number of residents who reliably accessed water (reliability of over 80%) increased from 9.5% before stakeholders were engaged to 16.2% after devolution. Similarly, those whose access to water was >60% to 80% reliable increased from 9.5% before devolution through engaging communities to 21.6% after devolution. In

contrast, proportion of residents with unreliable water access (20% and below) reduced from 9.5% before devolution to 2.7% after devolution. This is an indication that devolution has improved the reliability of water access in ASALs, with more residents in these areas having more reliable water access than before. Reliability of water implies ease of access to water resource with water that does not usually require to be treated for consumption, and whose water supply is rich enough to meet the needs of the people in all seasons (Harvey & Reed, 2004).

e) Salinity of Water Accessed

The number of residents accessing less saline water (salinity of 20% and below) has slightly reduced; from 43.2% before devolution to 41.9% after devolution. However, residents accessing moderately saline water (salinity of >40% to 60%) increased from 17.6% before devolution to 21.6% after devolution. In contrast, 17.6% of residents accessed relatively high saline water (salinity of >60% to 80%) compared to 10.8% of residents who access such water after devolution. The findings indicate that devolution has had a less impact on the salinity of water accessed by residents in the ASALs. This is probably because salinity of the water sources in these areas is more or less a natural aspect and the County governments have not implemented technologies to reduce the salinity of water accessible to the residents. According to Peprah, Oduro-Ofori and Asante-Wusu (2015), salinity of water for consumption provided to the citizenry should be low.

f) Frequency in Water Treatment

It was attested that after devolution through engagement of stakeholders, 29.7% of residents access water that is infrequently treated (treatment frequency of 20% and below) compared to 32.4% of them before devolution. On the other hand, residents accessing frequently treated water (treatment frequency of over 80%) increased from 18.9% before devolution to 20.3% after devolution. Similarly, the number of residents accessing water that is regularly treated (treatment frequency of >60% to 80%) increased from 10.8% before devolution to 18.9% after devolution. The implication is that although a simple majority of the residents in ASALs still access water that is infrequently treated, devolution has made substantial efforts to increase the residents' accessibility to treated water in these areas. In line with Harvey and Reed (2004), the findings could mean that most of the water sources are reliable since they do not need frequent treatment. However, they also fulfill the recommendation by Wagah, Onyango and Kibwage (2010) that it is important to upgrade the water treatment to enhance accessibility to safe water services.

g) Clarity of Water Used

After engaging stakeholders, 28.4% of the residents used water whose clarity was over 80%. This was an increase from 17.6% of residents who used such water before devolution. A similar trend was affirmed for water whose clarity was >60% to 80% where the proportion of residents accessing it increased from 27.0% before devolution to 29.7% after devolution. On the other hand, the number of residents using unclear water (clarity of 20% and below) decreased from 8.1% before devolution to 4.1% after devolution. The findings imply that devolution has enhanced the accessibility to clear water in the ASALs. This is in line with Cherunya, Janezic and Leuchner (2015) description of water accessibility that should also be reflected by ability to access clean water for consumption.

The findings on water provision indicate that stakeholder engagement has largely enhanced the requirements that define water accessibility: availability, quality and affordability of the water (Cherunya, Janezic & Leuchner, 2015). Physically accessing the water indicates the ability for the community to get safe, sufficient and consistent water supply; having an adequate number of water channels which leads to less waiting time; practical distance from the point of household to the point of drawing water; and reasonable supply of all accessible water infrastructures (Cherunya, Janezic, & Leuchner, 2015). Economic accessibility is indicated by ease of affordability of water facilities by every household regardless of their level of affluence (Frone & Frone, 2013).

5. Conclusion and Recommendations

This study found a significant relationship between stakeholders' engagement and water provision. Given findings for this study, the researcher recommends that there is need to increase community awareness and participation in the management of water resources and catchments. Improve awareness among local communities on better water resources management practices. The study recommends the need to strengthen and continuous engagement of Water Resources Users Associations, Members of County Assemblies, County water management boards, the Sub County water officers and the community who are the beneficiaries. There should also be quarterly meetings with Water Resources Users Associations and the general public to identify the effectiveness of ongoing stakeholders' engagement and identify the issues of concern among the public regarding water provision.

Acknowledgments

I express earnest appreciation to my supervisors Dr. Leonard Wambua and Dr Michael Ngala for providing direction and guidance throughout the study.

My sincere gratitude goes to my family: my wives Katra Abdullahi Dubow and Nasteha Mohamed Issack, My daughter Rayan and son Mahir for their patience and support through my study.

I wish to also thank my friends Faiz Awadh Abdalla and Abdihafid Yarrow for the encouragement and the laughter that provided the much needed energy throughout the study. I wish to thank the entire teaching and non-teaching staff of the School of Management and Leadership whose contribution and support have helped me reach this far in my studies. God bless you all.

References

- Abdumlingo, H., & Mwirigi, M. F. (2014). Challenges of managing devolved funds in the delivery of services: A case study of Mombasa county. *International journal of research in commerce & management*, 5(5), 1-4.
- Akhmouch & Clavreul (2016). Stakeholder engagement for inclusive water governance: "Practicing what we preach" with the OECD water governance initiative. *Water*, 8(204), 1-17
- Gambe, T. R. (2013). Stakeholders' engagement in water provision: Lessons from Msasa park, Harare, Zimbabwe. *International Journal of Politics and Good Governance*, 4(42), 1-21
- Greenwood, M. (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics*, 74, 315-327
- Illes, K., & Mathews, M. (2015). Leadership, Trust and Communication: Building Trust in Companies through Effective Communication.
- Iqbal, N., Anwar, S., & Haider, N. (2015). Effect of transformational leadership on employee performance. *Arabian Journal of Business and Management Review*, 5(5), 1-6
- Irefin, M. P., & Bwala, D. (2012). Organizational theories and analysis: A feminist perspective. *International Journal of Advancements in Research & Technology*, 1(1), 71-97.
- Kothari, C.R. (2004). *Research Methodology: Methods and Techniques* (2nd Revised ed.). New Delhi: New Age International (P).
- Miriti, A. K., & Keiyoro, P. (2017). Influence of devolution of government service delivery on provision of healthcare: A case of level five hospital in Meru County, Kenya. *International Academic Journal of Information Sciences and Project Management*, 2(1), 300-315
- Munive-Hernandez, E. J., Dewhurst, F. W., Pritchard, M. C., & Barber, K. D. (2004). Modelling the strategy management process: An initial BPM approach. *Business Process Management Journal*, 10(6), 691-711.
- Mwendamseke, E. (2016). Assessment of Community-Owned Water Supply Organizations (COWSOs) Strategy for Sustainability of Rural Water Supply in Dodoma Region
- Nagendra, A., & Farooqui, S. (2016). Role of Transformational leadership on Organizational Performance. *International Journal of Research in Commerce & Management*, 7(4).
- Naidu, S. P. (1996). *Public Administration: Concepts and Theories*. Delhi: New Age International Publishers.
- Naiga, R., Penker, M., & Hogl, K. (2015). Challenging pathways to safe water access in rural Uganda: From supply to demand-driven water governance. *International Journal of the Commons*, 9(1), 237-260.
- Ngari, S. (2001). *The impact of these dams on the recipient communities*. Analyzing the government policies on water and Arid and Semi-Arid Lands (ASALs).
- Ngodo, O. E. (2008). Procedural justice and trust: The link in the transformative leadership-organizational outcomes relationship. *International Journal of Leadership Studies*, 4(1), 82-100.
- Nhema, A. G. (2015). Relevance of classical management theories to modern public administration: A review. *Journal of Public Administration and Governance*, 5(3), 165-179
- OECD (2015). *OECD Studies on Water: Stakeholder Engagement for Inclusive Water Governance*. Paris: OECD Publishing. <http://dx.doi.org/10.1787/9789264231122-en>
- Phillips, R. & Noland, J. (2010). Stakeholder engagement, discourse ethics and strategic management. *International Journal of Management Reviews*, 12(1), 33-45.

- Sosiawani, I., Ramli, A. B., Mustafa, M. B., & Yusoff, R. Z. B. (2015). Strategic Planning and Firm Performance: A Proposed Framework.
- Wijewardena, H., De Zoysa, A., Fonseka, T., & Perera, B. (2004). The impact of planning and control sophistication on performance of small and medium-sized enterprises: evidence from Sri Lanka. *Journal of Small Business Management*, 42(2), 209.
- Woodhouse, M. (2004). Realizing the right to water. *Practical Action Publishing*, 23(1), 22-23.
- World Bank (2012). *Devolution without Disruption – Pathways to a Successful New Kenya*. Nairobi: World Bank
- Xenikou, A., & Simosi, M. (2006). Organizational culture and transformative leadership as predictors of business unit performance. *Journal of Managerial Psychology*, 21(6), 566-579.
- Yang, C. X., Liu, H. M., & Wang, X. X. (2013). Organization theories: From classical to modern. *Journal of Applied Sciences*, 13(21), 4470.
- Yee, S. (2010). *Stakeholder Engagement and Public Participation in Environmental Flows and River Health Assessment*. Project Code P0018. Australia-China Environment Development Partnership. Retrieved from <http://watercentre.org/portfolio/rhef/attachments/technical-reports/stakeholder-engagementand-public-participation-in-eflows-and-river-health-assessments>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).