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Influence of Governance Structures of the Community Water Projects on Sustainability in the Suam Catchment Area of West Pokot County, Kenya

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Abstract: Water resources management remains a critical challenge for most of the players in the water sector. This is worsened by the unpredictable climatic conditions that are experienced on the globe in the recent past and present. It is evident that in most parts of Africa, women and young children shoulder the heavy burden of providing water to their families. This leaves them with little time for other demanding day-to-day assignments. This study seeks to analyze the effect of governance of community water projects on sustainability of community water projects in Suam Catchment area of West Pokot County in Kenya. The findings would be of value to stakeholders, partners, policy makers, planners, donor agencies and relevant government agencies in formulating policies to address the challenges and hindrances to Integrated Water Resources Management.

The study adopted a descriptive survey research design. It had a total population of 96 respondents drawn from different strata. This study used census-sampling technique where the entire population was used as sample size hence, 96 respondents. Data collection tools were questionnaires and interview schedules. Data was analyzed both qualitatively and quantitatively with quantitative analysis employing both descriptive statistics involving mean, median, frequency distributions and percentages as well as inferential statistics.

Qualitative data was analysed in themes and appropriately merges with its respective objectives under quantitative analysis. The study found out that there were between 11-15 projects in the Suam catchment area. The officials of the water projects were not democratically elected and there was no women participating in the management. The study concludes no significant relationships between governance structures. It is recommended that the Ministry of Water and Sanitation implement policy pertaining to management of water resources.

Keywords: Governance structure, Sustainability, Water Catchment Area.

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Introduction

Access to water resources remains a daily challenge to most families across the globe even though it is one of the basic fundamental rights for human existence. Water is critical and has a very significant role for the wellbeing and development of the eco-systems (Brauman, 2015); supports life forms including various animal species and vegetation. It is also imperative to point out that community, various local economies and natural systems solely rely on water resources for their normal functioning; thus, destruction and non-sustainable measures normally practiced towards use of water resources destroy ecosystems (UNICEF, 2012).

In South Africa, a water-scarce country, the need to safeguard the sustainable provision of ecosystem goods, services and protection of the interests and welfare of all users, especially the poor, women and the disabled became critical leading to adoption of Integrated Water Resources Management framework (Karar, Mazibuko, Gyedu-Ababio and Weston, 2011).

According to Sokile and Koppen, (2004) Tanzania's Integrated Water Resources Management has demonstrated a bias towards the formal state-based institutions for water management resulted to an escalation of state-based formal institutional arrangements through which Water Resources Users Associations are formed besides providing frameworks for water allocation.

In Kenya, Integrated Water Resources Management has informed water resource management practices aimed to achieve the goal of access to clean, safe and increased water availability, which is a key determinant of health (Plummer, Loë and Armitage, 2012). As Mango, Melesse, McClain, Gann and Setegn (2011) asserts, water is a key resource in Kenya, critical to the conservation of ecosystems and also to the development of agriculture, industry, power generation, livestock production, and other important economic activities.

The performance of all sectors of the economy is dependent on water availability in adequate quantity and quality. Therefore, a river basin as a natural and basic unit for Integrated Water Resources Management has to be pursued based on the fact that it provides a means to realizing efficient, equitable and sustainable water resources management (Rachael, 2008).

Governance Structure and Sustainability of Community Water projects

Leidel (2012) asserts that good water governance always include aspects of democracy where decisions are made based on the agreed modes from each and every community member affected by the said water projects; community participation where each and every individual involvement is appreciated and willingness to work towards the projects common good. There has to be ample coordination between the state agencies involved in water such as Water Resources Authority, Water Boards officials and other ministries, civil society groups and private sector, and the rule of law and in this case the use of the Water Act 2016.

In a study by Dietz, Ostrom and Stern (2013), there are inefficiencies in governance on water resources. They point out these inefficiencies to weak management skills in the decision makers and other stakeholders in the allocation of water resources, water resource development, and protection that in most cases have inherent political dimensions. They further suggest strategies on how to initiate and implement change through Integrated Water Resources Management. They conclude their argument that devolving governance of water resources and empowering institutions in decision-making processes through participation in making these decisions is fundamental in achieving sustainable water resource management.

This study will deal on governance issues of water resources but will not delve on governance strata of Integrated Water Resources Management which the current study proposes to address.

According to a study by Butterworth et al (2010), 'aspirations for water resources management and development are well attended to where Integrated Water Resources Management focuses on practical problem solving.' He argues that all players in water sector should pull together in harnessing practical solutions like unification of water resources development options, water allocation, pollution or ecosystem management. The author suggests further that, 'problem solving imparts itself more easily to bringing speedy results from amalgamation and hence to providing returns on the investment by stakeholders of time and resources in working jointly with other water users on water management.' This is true he opines that outputs on the ground are an incentive, which then strengthens institutional alterations at advanced intensities. This aspect of integrated water resources management precludes the democratic aspect of stakeholders in governance of community water resources, which the current study bring on board for efficiency and sustainable management of water resources.

Studies to evaluate the catalyst for Integrated Water Resources Management implementation in Nigeria, found out that, the Nigerian Federal Ministry of Water Resources working with a collaboration of partners supporting implementation and sustainability, initiated mechanisms along a set of parallel pathways. To achieve tangible results, 'a domino effect from a basin water audit report were dispersed to make clear the depth and severity of the water catastrophe in the basin and to ensure that all water participants had access to and shared similar information.' Despite the study, additional insights on the management of water resources lacked adequate generalizations which can be replicated to other water catchment areas in different locations and environment (Smith and Cartin, 2011).

In a report establishing Nigerian Integrated Water Resources Management Commission that expounded on the governance of water resources, one of the findings of this study suggested that, needs are to be organized and coordinated at higher governmental levels and be trickled down to water users for the success implementation of integrated water resource management. Principles thus realizing of community water projects sustainability. This report concurs with democracy approach in terms of governance of integrated water resource management how it adopts a bottom up structure (Smith and Cartin, 2011).

Methods

This study adopted a descriptive survey research design. The study area is Suam Catchment Area in North Pokot Sub County, West Pokot County in Kenya. The population of the study comprises key stakeholders associated with the Suam River Basin management and development. This includes Water Resources, User Associations, government officials, local organizations, community members, employees of Kerio Valley Development Authority; Ministry of Interior and Coordination of National Government, Water Resources Authority, National government; Ministry of Water, Environment and Natural Resources, County government; Kapenguria Water and Sanitation Company, Ministry of Agriculture and the Local communities along the Suam River Basin totalling 96 respondents. This study therefore used census-sampling technique where the entire population is used as sample size since the respondents are not many. The questionnaires and interview schedule for data schedule. Given that the data required for the study was both quantitative and qualitative, the student obtained an introductory letter from Kisii University, proceeds and acquired a research permit

from the National Council for Science and Technology (NACOSTI). Both quantitative and qualitative data collected was analyzed. Interpretation of the data was done and conclusions drawn.

Findings

Governance Structure and Sustainability of Community Water Projects

The first objective of this study was to assess the governance structures of the Community Water Projects in relation to Sustainability in Suam Catchment Areas of West Pokot County. The questions were processed as below:

Governance Structures of the Community

The respondents were asked to indicate the leadership of water projects in the water catchment area. Their responses were as below:

Table 1. People in-Charge of Community Water projects in the Area

Statement	Frequency	Percent
Appointed/Elected leaders	36	45.0
No one is in-charge	19	23.8
Water Officers	13	16.3
Local Leaders	12	15.0
Total	80	100.0

As illustrated in table 1, it was observed that the management and governance of community water projects in Suam Catchment area is vested on appointed / elected leaders (45%). However, a few percentages of the respondents held views that local leaders (15%) and water officers (16.3%) were the ones in-charge with 23.8% of them saying that there was no one governing the water projects in the area. These findings agree with Adhiambo, (2012) who found out that that most of the community projects were supervised by the chairpersons. The study also contradicts the notion that community members were under represented in supervision of the said water projects as appointed leaders and local leaders are often drawn from the local area.

Mode Appointment of Leaders

Having identified the leaders of various community water projects in Suam Catchment areas of West Pokot County, the study sought to ascertain the mode appointment of leaders to the office. The responses were given as in table 2.

Table 2. People in-charge are democratically elected

Statement	Frequency	Percent
Yes	12	15.0
No	68	85.0
Total	**80**	**100.0**

As illustrated in table 2, it is clear that most (85.0%) of the respondents sampled held views that the leadership and management of community water projects with the Suam Catchment area were not democratically appointed or selected by the community concerned. This heavily hampers the sustainability of the said water projects as most of the community members feel neglected and left out in the whole issue of management of their own water projects.

These findings contradicts Leidel, (2012) who observes that good water governance always include aspects of democracy where decisions are made based on the agreed modes from each and every community member affected by the said water projects. This involves participation where each and every individuals involvement is appreciated and willingness to work towards the projects common good; ample coordination between the state agencies involved in water i.e. ministry of water officials and other ministries, civil society and private sector, and the rule of law. The study agrees with Dietz, Ostrom and Stern (2013) who observed that in most cases there exist visible imbalances in governance among various stakeholders and decisions on water resource allocation, development, management and protection, which in most cases have inherently political dimensions.

Water Governance Issues

The study further sought the rating of various water governance issues and factors that are seen to propagate Integrated Water Resources Management principles. In rating of these factors, a likert scale type of question was used where 1 represented Strongly Disagree, 2 Disagree, 3 Neutral (neither Disagree nor Agree), 4 Agree and 5 strongly disagree. Hence, mean and standard deviation was used in answering as illustrated:

Table 3. Ranking of Governance Matters

Factors	SA	A	N	D	SD
	%	%	%	%	%
There's an all-inclusive governance of community water projects	28.8	13.8	6.3	32.5	18.8
Individuals charged with water management are well conversant and knowledgeable on how to manage water projects	8.8	21.3	16.3	18.8	35.0
Some members of the governance committee are hostile and prejudice or coerce other community members	46.3	28.8	0	13.8	11.3
The governance of Community water projects is rotational and each community members compete in elections	15.0	8.8	3.8	41.3	33.8
The governance of community water projects are basically drawn from the community members	43.8	37.5	5.0	8.8	2.5
Involvement of women in water governance	0	7.5	6.25	43.7	42.5

From the table above 32.5% of the respondents disagreed that there's an all-inclusive governance of community water projects with 28.75% strongly agreeing. 18.75% and 13.75% strongly disagreed and agreed respectively .6.25% gave a neutral response.

On individuals charged with water management being well conversant and knowledgeable on how to manage water projects, 35% strongly disagreed with 21.25% agreeing 18.75 percentage and 16.25% disagreed and gave a neutral response respectively 8.75 percentage strongly agreed.

On some members of the governance committee being hostile and prejudice or coercing other community members, 46.25% strongly agreed with 28.75% agreeing 13.75% and 11.25% disagreed and strongly disagreed respectively. None of the respondents gave a neutral response. On the governance of Community water projects being rotational and each community members competing in elections 41.25% strongly disagreed with, 33.75% strongly disagreeing .15.00% and 8.75% strongly agreed and agreed respectively. 3.75% gave a neutral response. On the governance of community, water projects being drawn from the community members, 43.75% strongly agreed with 37.5% agreeing 8.75% and 5% disagreed and gave a neutral response respectively 2.5% strongly disagreed. This indicates that indeed majority of the water projects leaders in the study area were drawn from the local populace. On involvement of women in water governance, 43.75% disagreed with 42.50% strongly disagreeing 7.5% and 6.25% agreed and gave a neutral response respectively. None of the respondents strongly agreed. This was a typical indication of a society that less accepts women as part of the leadership other than child rearing and upbringing and yet they suffer most with the men actions in mismanaging the ecosystem.

The study differs with studies by Leidel (2012) who assert that good water governance always include aspects of democracy where decisions are made based on the agreed modes from each and every community member affected by the said water projects; community participation where each and every individual involvement is appreciated and willingness to work towards the projects common good. They also argue that there has to be ample coordination between the state agencies involved in water such as ministry of water officials and other ministries, civil society groups and private sector, and the rule of law and in this case the use of the Water Act 2016.

The study also complies with a study by Dietz, Ostrom and Stern (2013) who argue that there are inefficiencies in governance on water resources. They point out these inefficiencies to weak or poor management skills in the decision makers and other stakeholders in the allocation of water resources, water resource development, and protection that in most cases have inherent political dimensions. The study too confirms the studies Butterworth et al (2010) who argues that all players in water sector should pull together in harnessing practical solutions like to unification water resources development options, water allocation, pollution or ecosystem management. Butterworth suggests further that, ‘problem solving imparts itself more easily to bringing speedy results from amalgamation and hence, to providing returns on the investment by stakeholders of time and resources in working jointly with other water users on water management.’

Linear Regression for Governance Structures

Multiple linear regressions were computed at 95 percent confidence interval (0.05 margin error) to show the multiple linear relationships between the independent and dependent variables of the study.

Table 41. Model Summary governance structures

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.197[a]	.039	.302	.47553

a. Predictors: (Constant), Involvement of women in water governance, The governance of community water projects are basically drawn from the community members, The governance of Community water projects is rotational and each community members compete in elections, Some members of the governance

committee are hostile and prejudice or coerce other community members, There's an all-inclusive governance of community water projects, Individuals charged with water management are well conversant and knowledgeable on how to manage water projects

Table 4 shows that the coefficient of correlation (R) is 0.197 while the coefficient of determination (R Square) indicates that 3.9% of the variance of sustainability in the Suam water catchment areas was influenced the independent variable governance structures leaving the 96.1% to be influenced by other factors that were not captured in this study. This therefore indicates a very small effect on the dependent variable.

Table 5. Analysis of Variance for governance structures

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1.682	6	.280	.491	.048
Residual	41.642	73	.570		
Total	43.324	79			
a. Dependent Variable: Sustainability					
b. Predictors: (Constant), Involvement of women in water governance, The governance of community water projects are basically drawn from the community members, The governance of Community water projects is rotational and each community members compete in elections, Some members of the governance committee are hostile and prejudice or coerce other community members, Governance, There's an all-inclusive governance of community water projects, Individuals charged with water management are well conversant and knowledgeable on how to manage water projects					

From Table 5, governance structures of the Community Water projects and Sustainability in the Suam water catchment areas (β= 0.048) was found to be positively related to sustainability. Statistically, this null hypothesis was rejected because $\rho<0.05$. Hence, the study accepted the alternative hypothesis, which showed that there was a significant relationship between governance structures of the Community Water projects and Sustainability in the Suam water catchment.

Table 6. Coefficients Governance Structures

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.192	.536		4.087	.000	1.123	3.261
There's an all-inclusive governance of community water projects	.072	.230	.151	.314	.042	.386	.530
Individuals charged with water management	-.024	.282	.045	-.085	.063	.586	.538

are well conversant and knowledgeable on how to manage water projects							
Some members of the governance committee are hostile and prejudice or coerce other community members	.090	.165	.174	.548	.059	-.238	.419
The governance of Community water projects is rotational and each community members compete in elections	.022	.155	.042	.144	.086	.331	.287
The governance of community water projects are basically drawn from the community members	.160	.217	.247	.738	.046	.594	.273
Involvement of women in water governance	.146	.237	.173	.614	.541	.327	.619
a. Dependent Variable: Sustainability							

The study established relationships between the following elements of governance structures and sustainability of water catchment area; There is an all-inclusive governance of community water projects r=-.072, p=.042<.05; Individuals charged with water management are well conversant and knowledgeable on how to manage water projects r=0.-.024, p=.063>.05.; Some members of the governance committee are hostile and prejudice or coerce other community members r=090, p=059>.05.

The governance of Community water projects is rotational and each community members compete in elections r= 022, p=086>.05; the governance of community water projects are drawn from the community members; Involvement of women in water governance r=160, p= 046 >.05 and involvement of women in water governance r=146, p= 541>.05.

Conclusions

From the study findings, it was concluded that there were no significant relationships between governance structures and Sustainability in the Suam water catchment areas as their (β) values were found to be negatively related to sustainability.

Recommendations

The study recommend that the Ministry of Water and Sanitation to should develop a policy making it mandatory for water related project activities to conduct democratic elections in determining their leadership other than the case now where leaders are either self-appointed or selected. It is also recommended that women should be given an opportunity in leadership to comply with the third gender rule in the constitution as far as representation is concerned. The study too recommends that entire population residing in the Suam Water Catchment area should be sensitized on matters sustainability as majority do not seem to be aware of the Integrated Water Resource Management Policy.

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