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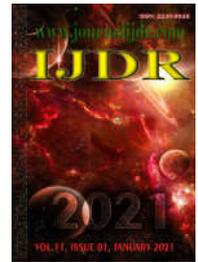
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RESEARCH ARTICLE

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## EFFECTS OF BLENDED FINANCE ON ACCESS TO WATER IN KENYA

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### ABSTRACT

This study aimed at establishing the effect of blended finance on access to water in Kenya. The study was guided by three specific objectives namely to; determine the effect of the private sector funding on access to water, evaluate the effect of public sector funding on access to water and establish the effect of donor funding on access to water in Kenya. The descriptive research design was used in the study. Senior officers from the 9 water services provider implementing blended finance in Kenya were interviewed. To gather primary data, a semi-structured questionnaire (with both close-ended and open-ended questions) was used. From the survey, qualitative as well as quantitative data were derived. Multiple linear regression model was used to explore the relationship between the dependent variable and the independent variable. The study found out that Private sector funding has a negative but significant effect on access to water. Public sector funding has a positive but insignificant effect on access to water while donor funding has a positive and significant effect on access to water. The study, therefore, recommends that the government should use its influence to mobilize private financing from financial institutions to help in the financing of the water projects in the country. The government should also increase its funding to the water sector to improve the water infrastructure and thereby enhance access to water in Kenya. This way, the donors will be able to come in, to supplement the governments' effort in enhancing access to water.

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## INTRODUCTION

One of the 17 goals lodged by UN in 2015 to be achieved in 2030 is SDG goal number 6.1 on access to clean water. Globally 2.1 billion people lack access to clean water with 84% of the population living in rural areas (WHO/UNICEF, 2019). The 2030 target set globally by the UN is aimed at reaching out to 800 Million people. By 2030 approximately \$1.7 trillion will be needed for the world to attain the targets set on SDG 6.1 meaning the countries have to increase their investment four times (World Bank, 2016). Development finance has emerged as an integral tool in achievement of SDG's by the year 2030. It can be broadly defined as the use of public sector resources to facilitate private sector investment in areas where the risks are too high for private sectors to invest. Development finance aims to establish approaches which leverage private sector funding as a way of encouraging them to invest more in public projects through innovation. Development finance need to be shaped to ensure that in future the world fulfils her development agendas to benefit everyone (OECD, 2013). The UN through 2015 the Addis Ababa Agenda challenged the global society to enter partnerships and innovate on financing models for the achievement of SDGs on how to finance the USD 2.5 Trillion funding gaps by 2030 (World Bank, 2016). Pointing to the fact that the world produces USD 78 trillion of annual GDP largely from the private sector, the UN has emphasized the importance of engaging the private sector to close the funding gap (UN, 2017). Responding to this, blended finance, which is the use of development funds to leverage private finance, has been defined as an

area in which there is potential for establishing new forms of development cooperation (ECOSOC, 2016). The water sector has been largely financed by the public sector in developing countries with a few donors coming in to assist (World Bank Group, 2012). Sustainability of the donor projects after the end of the implementation period for the Public sector with a lot of developing countries sinking in huge debt; it is not sustainable for governments to continue funding such basic amenities like water. Kenya has a population of 47million people (KNBS, 2019) and 40% of them are dependent on unimproved water sources namely, shallow wells, ponds, and rivers (WASREB, 2018). Moreover, Kenya has a limited renewable freshwater supply which stands at 647M<sup>3</sup>. This is less than the United Nations recommended minimum of 1000m<sup>3</sup> per capita and has thus led to Kenya being classified by the United Nations as a water-scarce country. World Bank (2016) has estimated that the supply of safe water is only accessible by approximately 56% of Kenyans. The water crisis has been worsened by several factors like failure to invest in water resources, drinking water being contaminated as well as global warming which has resulted to the recurrence of deadly floods as well as severe droughts.

Access to water by the population has been hampered by poor water management in the country. For many decades, water management has been a challenge in Kenya. One of the greatest challenges of water management over the years has been the assumption that the government is obligated to provide water to its citizens for free (Avolio, 2017). This has resulting to increase in non-revenue water which has led to unsustainable institutions of water due to lack of

sufficient revenues from water provision. Lack of access to safe water is more pronounced in the rural areas which causes a strain on children and women who are tasked with the duty of fetching for water. Other challenges relating to access to safe drinking water are water quality, wastewater treatment and continuity of water supply. Access to adequate and safe water is therefore a requisite for the population's well-being. The attainment of a healthier Kenyan population, as well as its satisfactory well-being, is therefore hinged on sufficient access to water. Under the 2010 constitution, the water became a devolved amenity with all the 47 counties having an obligation to come up with water suppliers which meet the regulation as set out by the regulator (WASREB, 2018). Since the revenue allocation might not be enough to provide basic amenities like water to all its citizens; there is need to come up with an innovative way of ensuring that access to water is available bearing in mind the costs associated with its provision and the infrastructure not forgetting the cost been passed to the consumers. Normally there is no single bullet in development matters. No single financing structure can be used to finance all the SDGs, but blended finance has proved to be part of many solutions.

Blended finance has been defined by the OECD as the strategic use of development finance for the mobilization of additional finance towards sustainable development in developing countries, with additional finance referring primarily to a commercial finance (OECD, 2019). Blended finance, therefore, is an investment tool targeted at investor-friendly development projects that have sustainability and economic growth focus. Beyond its application as a reliable source of capital in countries that may not attract enough Official Development Assistance (ODA) or Foreign Direct Investment (FDI) to fund vital projects or allocate funds to smaller businesses in need. Blended finance is also a tool designed to strengthen human capital and reinforce sustainability in recipient countries through on-the-ground implementation assistance, formal investment education, and working within existing markets to build commercially viable projects (OECD, 2019). Blended finance has three components namely, private funding, public funding, and donor funding.

Kenya is a water-scarce country and therefore requires clear and well-coordinated investment planning for the water and sanitation sector. According to the World Bank (2016), Ksh1.7 trillion is required by the government for the provision of, access to water by all, by 2030. Nevertheless, the government is only able to finance Ksh 592.4 billion of the total cost of increasing the supply of water (World Bank, 2016). This, therefore, means there is a Ksh1.2 trillion finance gap being faced by the government which may end up negatively affecting the realization of target 6.1 of the sustainable development goal 6, which appeals for safe water access to all by 2030. Although the government has marginally increased its allocation to the water sector, the sector has been unable to bridge the remaining financing gap by generating enough revenue (WHO, 2017). Water services providers in Kenya, do not collect sufficient revenue for sustaining water services' provision and leveraging commercial financing, as evidenced by the high levels of non-revenue water which presently stands at 42% of the water supplied. According to Claasen (2016), losses emanating from illegal connections and vandalism are the main causes of the high levels of non-revenue water. At the national level, the growing concerns about how the public debt will be sustainable hampers the ability to borrow for scaling up water access. Even with Kenya Commercial Bank as well as the Sidian Bank leading in providing the water and sanitation sector with commercial loans meant for bridging the current resource deficit, accessibility of loan services by water service providers is still inadequate (Claasen, 2016). The supposed high risk in the water service provision sector, poor creditworthiness, the involvement of many actors which results to complex structuring of loans as well as delays in the valuation of the water projects to be financed limits access to commercial financing for public water providers/utilities.

Kenya needs a massive expansion of its water system failure to which the situation of water scarcity will worsen even further. Gachui (2017) notes that the northern collector currently under construction which is expected to gradually increase the daily water supply to 1.3M m<sup>3</sup> by

the year 2035. In the short term, this might come with much-needed relief for the people in its environments. However, with the continuous increase in the population, the supply of water will have to increase at the same rate by always discovering larger sources of water at a greater pace in more remote areas. In Kenya, 57% of the population has access to tapped water (Kahariri, 2016). The other half of the population sources their water from vendors, water kiosks, illegal connections which in most cases are contaminated with the sewerage and from wells. Only 40% of the 57% population, that has access to tap water, receive the water for 24 hours in a day (Ondigo, Kavoo, & Kebwaro, 2018). Additionally, the quality of water getting to the taps is sometimes highly contaminated due to the high leakages along the way. This means that the percentage of the population with access to safe water in the county is very minimal. Several efforts that have been made to finance the water supply sector to enhance access to water have been futile. Many private and government-sponsored organizations have for instance tried to invest in water and sanitation providence to the slum dwellers since 1992 but have faced challenges that include: poor financial support from both the national and local governments, poor infrastructure, poor community perceptions and participation, poor training on the importance of such projects, poor rates of returns to the firms involved in water supply among other challenges (Kahariri, 2016).

Blended Finance presents an innovative opportunity for financing all water supply projects through increased funding by leveraging additional capital from private companies, philanthropist and public funds towards programs which need funds at a lower market value (OECD, 2019). Blended finance comes to de-risks development projects which are termed as risk venture and commercial lenders are not willing to fund the investors either because it's a low return low-risk investment or the investors do not have collateral as security for them to access such facilities (OECD, 2019). Through the provision of capital to small scale investors, blended finance ensures that there is an easy entry to the market which enhances capacity, growth, and development in the developing economies (Convergence, 2019). The same could therefore be adopted to enhance access to water in Kenya and ease the burden of water scarcity in the country. Studies done on blended finance include Tew and Caio (2016) who did a study on blended finance and its potential for agenda 2030. The study established that compared to other financial flows, private sector investment going to developing countries because of blended finance was small. The study however did not give a specific relationship between the blended financing in form of private sector investment and access to water. Sene (2019) on the other hand did a study on the adoption of blended finance in the least developed countries' national planning processes and the SDGs specifically focusing on Senegal. The study revealed that blended finance was part of Senegal's development finance toolbox for the public-private partnership in key sectors such as water, health, and energy. Therefore, the objective of this study is to establish the effect of blended finance on access to water in Kenya. The rest of the study is organised into 4 sections. Sections two and three contain the literature review and research methodology used in the study while sections four present, analysed the data and discuss the findings, section five contains the conclusion and recommendations.

## Literature Review

**Theoretical Review:** The study was guided by three theories: Contracting cost theory, Agency theory and theory of change *Contracting cost Theory*; Advanced by Watts and Zimmerman (1978) posits that firms whose value mainly consists of the present value of intangible investment opportunities choose lower debt ratios. The method of debt issuing which Watts and Zimmerman (1978) consider as conservative is done to reduce the adverse effects of the underinvestment problems. The fundamental specificities inherent in public-private partnership contracts could help maintain competitive pressure. The theory explained how the involvement of the private sector funding can help reduce the public debt in providing a public good. Watts and Zimmerman (1978) postulated that the role of

instilling discipline to the special purpose entity (SPE) overseeing the contracts is played by to prevent financial schemes that are extremely aggressive, and which could prompt a momentous financial susceptibility. Simply put, SPE bonds' financial investors are at a better place of favouring the optimum levels of leverage as well as gearing. Their expected returns would otherwise be compromised by weak debt coverage ratios. *Theory of Change*; Orosz, Phillips and Wyatt Knowlton (2003) developed the theory of change as a tool that shows the path from needs to activities to outcomes to impact. It describes the change one would want to make and the steps involved in making that change happen. The theory explains how the public must change the mentality of public goods like water is supposed to be free. They should be willing to pay a cost for them to receive quality and quantity. Changes need to be made by the government to ensure that our policies give a conducive environment for private investors and donors to have the urge to fund access to water in Kenya.

**Agency Theory:** Jensen and Meckling (1976) advanced the agency theory further, from the works of Berle who is credited with originally developing the theory in 1972 when they identified the agency glitches present in firms' governance. Laffont and Mattiford (2012) aver that the agency theory is an approach of management where an entity or an individual, referred to as the agent, operates in the best interests of another entity or individual, referred to as the principal, to advance the goals and aspirations of the principal. The theory is relevant in advancing donor funding by ensuring that the interests of donors are advanced by the citizens as the agents without diverting the funds to corruption deals.

### Empirical Literature

Harun (2017) conducted a study in a selection of developing countries in Asia on the impact of the involvement of the private sector in the services of supplying water on human water rights fulfilment. This research was carried out based on an appraisal of important literature as well as its analysis in the field of study. To outline the water right, primary sources which included instruments of international law in the field of socio-economic rights were depended on. The study revealed that the involvement of the private sector in the water supply and services had a significant relation to the fulfilment of human water rights. McCallum (2018) also did a study in South Africa on impact investment by the private sector in the infrastructure of water purification. The subject under examination was explored and described using the approach of qualitative research which was selected. Developing, validating and revising a conceptual framework was done to assist in addressing the research objectives, both primary and secondary. A broad review of the literature was used to gather and analyse secondary data. This review of the literature resulted in the development of the projected conceptual framework. In identifying 20 experts in the market of impact investment as well as the process of local water provision, a blend of snowball and judgement sampling was used. The experts then participated in semi-structured personal interviews. Majority of the impact investors in South Africa, as the findings revealed, put more preference on financial returns (finance-first investors) above social impacts and/or impacts on the environment. Lack of lifecycle maintenance, low expectations of financial returns as well as probabilities of political interference were the main barriers to impact financing in the infrastructure of purification of water in South Africa.

Domljan (2019) also did a study on critical success factors of private sector participation in water supply services in Bosnia and Herzegovina. The study incorporated both qualitative and quantitative strategies. The population of the study included the urban stakeholders, both those in the delivery system and the recipients of the urban water supply. The total sample used was 272 persons that were purposively selected. To gather primary data, the study utilized a questionnaire. Secondary data was used in the design and formation of the background of the study. Data analysis consisted of running various statistical procedures and tests on the data. This involved,

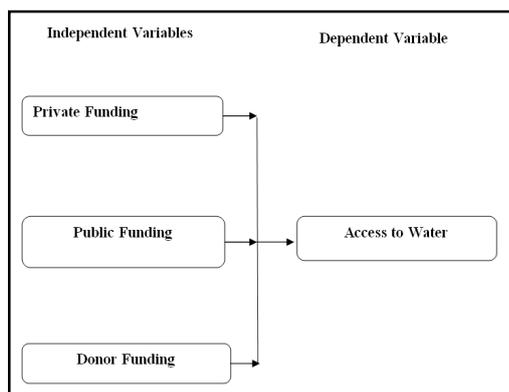
generating frequency distribution tables and percentages. These were later presented in form of graphs and charts. The study found that the quality of operator's resources, the strength of consortium, partners' commitment, public support and the political environment were of crucial importance for the success of private sector participation in water supply services. Mobie (2018) carried out a study on the impact of private sector involvement in the water system towards the poor the rural communities of Bushbuckridge South Africa. Personal interviews were used where qualitative data was required. Surveys were used where a mixture of qualitative and quantitative data was needed. Interviews with thirty (30) specific target subjects were done where four separate types of questionnaires generated regarding the specific target respondents were used. The study revealed that the involvement of the private sector water system towards the poor the rural communities improved the efforts for provision of, and access to water to the poor. Obosi (2018) did a study on the influence of public-private sector partnership in water service provision in the Lake Victoria Basin in Kenya. The study used secondary data and primary data from a household survey of 288 respondents, seven (7) Focus Group Discussions, and 28 Key informant interviews from seven (7) WSPs of the Lake Victoria South Water Services Board (LVSWSB) umbrella. The study used both qualitative and quantitative techniques to analyze the data. The main finding was that public institutions that had adopted more private sector participation performed better than those that had not, hence the more the public-private sector partnership, the better the quality of public service delivery.

Avolio (2017) conducted a study on the influence of public-public partnerships on the water service delivery solutions in rural and peri-urban areas in developing countries. The study adopted a fixed design and combined both quantitative and qualitative approaches. A fixed design was motivated by a series of predefined hypotheses about the potentialities of the Public-public partnerships in the management of water resources. The study was mainly based on secondary sources and relied on several different documents. The study was based on the collection and thorough analysis of the literature review of published and unpublished research produced by international and local organizations. The study established a strong positive correlation between public-public partnerships and the water service delivery solutions in rural and peri-urban areas. Dusen (2016) carried out a study on the assessment of public sector performance in the provision of clean water in Mexico City in Mexico. The primary materials used for research were scholarly economic, political, and environmental articles related to water management. The study used both qualitative and quantitative research methods. The study established that corruption and clientelism were the main causes of the technical and manmade induced problems in access to drinking water in Mexico City. The study established further that the public sector was paramount in the provision of clean water to the citizens of Mexico City. Sarmento (2015) carried out a study on the analysis of the influence of the public sector on access to improved drinking water and sanitation in East Timor. The research adopted a multiple case study approach. Mixed data collection methods were used including survey, FGDs, key informant interviews and observation to generate first-hand data. Qualitative data were generated by interviewing government officials and community members, and through conducting focused group discussions with service users. Once the data were cleaned and managed, various descriptive and inferential statistics were applied for data analysis. Qualitative data were also summarized and transcribed to substantiate the arguments used in the quantitative analysis. The study established that water service delivery had received due policy attention by the East Timor government. The study however also established that other than the policy attention, the government had not given enough finances for the water provision. World Bank introduced a pilot program with the Kenyan Commercial Bank and K-Rep Bank, where the water providers in Nairobi have access to loans with low-interest rates (Advani, 2016). The loans would later be used to widen the piped water network in Nairobi County (Murabula, 2019). Under the World Bank Program, the Maji Maisha loans were availed to the people living in Nairobi. Statistics indicate the with the Maji Maisha loans, approximately \$200,000 was

availed to the people living in Nairobi (Advani, 2016). The funding had a positive impact on the water supply in Nairobi. The funds saw an increase in access to the water piped from 45 per cent in 2005 to the current 51 per cent. Atunga (2015) carried out a study on the effect of donor support by water services trust fund on the performance of water service providers in Kenya. This study adopted a cross-sectional descriptive study was adopted and panel data analysis was used. The study focused on all the 99 operational WSPs in Kenya. The study used purposive sampling to select participating WSPs that met the inclusion criteria of the study. Secondary data collection was gathered from the reports of water service trust fund and water services regulatory board impact reports. In analyzing the data, the study made use of panel data. A strong relationship was identified by the study, between the performance of providers of water services and donor funding. Gachui (2017), in a study he carried out on how donor funding affected the success of community development water projects in Embu County Kenya, the study population was 1853 people who are members of the 20 water projects on which this study was based. A sample of 330 respondents was chosen using a two-stage sampling procedure. Out of the sample of 330, 290 respondents formed the final sample since 40 respondents did not return their questionnaires. The study carried out a multiple regression analysis to investigate the relationship between the independent factors and the dependent variable. It was revealed by the study that donor funding significantly and positively affected the level of success of community projects of water development. Olajuyigbe (2016) also did an investigation on the evaluation of how sustainable donor-driven water sector were, in Ikaram millennium village project, Nigeria. Structured close-ended questionnaire and semi-structure open-ended interview checklist were used to elicit information from respondents including households, key informants, millennium village officials, water and sanitation (WASH) committee members and staff of Ondo State Multilateral Agency that oversaw the project. From the projected population of 22,863, the household size in the cluster was estimated to be 3266 households using a national average family size of 7. Thereafter, 5% of the total number of households in Ikaram millennium village was chosen, amounting to 163. The household survey was administered using a simple random sampling technique. The study established that the sustainability of the donor-funded projects was dependent on community participation. Schmitz (2018) did a study on the influence of donor aid in the implementation of development projects in the sector of sanitation, water, and hygiene in Lebanon. The research design used for this research was descriptive. The secondary data used for this study were analyzed by use of the realistic literature review research method. The secondary data used for the analysis was conducted through desk research. A strong positive relationship was found in existence by the study, between donor aid and development projects' implementation in the sector of sanitation, water, and hygiene in Lebanon.

**Conceptual Framework**

In the study, the conceptual framework postulates that access to water is a function of the private sector, public sector financing and donor funding.



Source: Authors (2020)

**Figure 1: Conceptual Framework**

Mugenda and Mugenda (2009) postulates that the correlation between variables is explicated by the use of a conceptual framework which does so by the use of figures. It is a postulated model pinpointing the conceptions which are being studied as well as their correlation. Any adjustment to the independent variable results to a consequent alteration of the dependent variable. In literature, it was observed that public fund, private fund and donor/philanthropic funds constitute blended finance therefore; the diagram below illustrates these variables as well as their conceptualisation.

**RESEARCH METHODOLOGY**

The study adopted a descriptive research design. Kothari and Garg (2014) define research design as the scheme, outline or plan that is used to generate answers to research problems. According to Kombo and Tromp (2011), research design can be thought of as the structure of research. This design derives its advantage from the opportunity it provides fusing qualitative as well as quantitative information that was generated by the survey. The target populations were the 88 registered water service providers (WASREB, 2018). However, the sampled populations were the 9 Water Service Providers (WSP) implementing blended finance in Kenya under output aid based programme (WSTF, 2014). The research instruments used were questionnaire with both open-ended and closed-ended question administered to the senior officers drawn from different departments within the study sample. The regression model was specified as expressed below: -

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \epsilon \dots \dots \dots 1$$

Where:

- Y = Access to water.
- X<sub>1</sub> = Private sector funding.
- X<sub>2</sub> = Public sector funding.
- X<sub>3</sub> = Donor funding.
- β<sub>0</sub> = Constant
- β<sub>1</sub> β<sub>2</sub> β<sub>3</sub> and β<sub>4</sub> = coefficients of variables
- ε = error term

**Data Analysis and Discussion of Findings**

**Distribution and administration of the questionnaire:** The study sampled 45 respondents from the 9 Water Service Providers (WSP) implementing blended finance in Kenya. From these, 43 respondents filled and returned the questionnaires, which is a 96% response rate, while only two, did not. The information presented in this section, therefore, is as derived from the 43 respondents. The response rate was as illustrated in Table 2.

**Background information of respondents:** To confidently establish the respondent's capability at understanding the questionnaire, establish fair distribution and experience at the job. The background information was required based on the gender, educational level, and experience at the job. The researcher requested the respondents to indicate their gender. The results were as shown in Table 3. As illustrated, the majority (77%) of the respondents were males while 23% were female. This reveals that the majority of the employees working in the Water Service Providers were male. This distribution of employees was not representative of the gender rule. It was depictive of the sector's non-compliance with the two-thirds gender rule of not having more than two-thirds of one gender in employment opportunities nevertheless the respondents were not gendering irresponsible. The respondents were also requested to indicate the highest level of education they had achieved. As indicated in Table 4 above, most of the respondents (53%) stated that they had university degree as their highest level of education, 26% had a college-level diploma and 21% had a postgraduate level as their highest level of education. This illustrates that majority of the respondents were adequately educated and hence could respond to the questions asked

**Table 1: Operationalization of variables**

Variable Type	Variable	Indicators	Measurement Scale	Type of analysis
Independent	Private Sector Funding	Innovative approaches	Nominal & Ordinal	Descriptive Inferential
		Mobilization		
	Increased financing			
Independent	Public Sector Funding	Institutional finance	Nominal & Ordinal	Descriptive Inferential
		Policy & institutions		
	Donor Funding	Monitoring and evaluation	Nominal & Ordinal	Descriptive Inferential
		Flexible and timely financing		
Dependent	Access to water	Consolidation and coordination	Nominal & Ordinal	Descriptive Inferential
		User satisfaction		
		Piped water supply		
		Informal water cost		

Source: Authors (2020)

**Table 2: Rate of Response**

Category	Frequency	Percent
Filled questionnaires	43	96
Unfilled questionnaires	2	4
Total	45	100

Sources: Authors (2020)

**Table 3: Gender of respondents**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	10	23.3	23.3	23.3
	Male	33	76.7	76.7	100.0
	Total	43	100.0	100.0	

**Table 4: The highest level of education**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	College level	11	25.6	25.6	25.6
	University level	23	53.5	53.5	79.1
	Post graduate level	9	20.9	20.9	100.0
	Total	43	100.0	100.0	

**Table 5: Duration of service in the organization**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1- 5 years	13	30.2	30.2	30.2
	6- 10years	26	60.5	60.5	90.7
	11- 15 years	4	9.3	9.3	100.0
	Total	43	100.0	100.0	

Sources: Authors (2020)

**Table 6: Tests of Normality**

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Private Sector funding	0.152	43	0.078	0.944	43	0.834
Public Sector funding	0.209	43	0.092	0.918	43	0.921
Donor funding	0.154	43	0.32	0.956	43	0.095
Access to water	0.164	43	0.731	0.913	43	0.61
Model residual						

a. Lilliefors Significance Correction

Sources: Authors (2020)

**Table 7: Linearity Results**

	F-Statistic (Deviation from Linearity)	p-value
Access to Water * Private funding	1.250	0.097
Access to Water * Public funding	0.576	0.965
Access to Water * Donor funding	1.165	0.169

Sources: Authors (2020)

**Table 8: Multicollinearity**

Model		Collinearity Statistics	
		Tolerance	VIF
1	Private Sector Funding	.669	1.495
	Public Sector Funding	.346	2.893
	Donor Funding	.374	2.671

a. Dependent Variable: Access to Water

Sources: Authors (2020)

by the study. Furthermore, enquiries were made from the respondents on how long they had been an employee of the sampled Water Service Providers. Their responses were as illustrated in Table 5 below: As illustrated in the table, majority of the respondents (60%) had worked with WSP for 6-10 years, 25% had worked for 1-5 years, 9% for 11-15 years and 6% had worked in the WSP for more than 15%. This

illustrates that the respondents had worked with the Water Service Providers for long enough to give the required relevant information.

**Data Analysis:** To come up with a reliable model for this survey the researcher carried out appropriate diagnostic tests. Tests on diagnostics for normality, linearity, homoscedasticity,

**Table 9: Coefficient of Correlation**

		ACCESS WATER	PRIVATE FUNDING	PUBLIC FUNDING
ACCESS_WATER	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	43		
PRIVATE_FUNDING	Pearson Correlation	-.305*	1	
	Sig. (2-tailed)	.047		
	N	43	43	
PUBLIC_FUNDING	Pearson Correlation	.155	.174	1
	Sig. (2-tailed)	.321	.266	
	N	43	43	43
DONOR_FUNDING	Pearson Correlation	.266	.104	-.120
	Sig. (2-tailed)	.084	.507	.443
	N	43	43	43

Sources: Authors (2020)

**Table 10: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.498	0.248	0.190	0.22981

Sources: Authors (2020)

**Table 11: ANOVA Test**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.679	3	.226	4.285	.010 <sup>b</sup>
	Residual	2.060	39	.053		
	Total	2.738	42			

a. Dependent Variable: ACCESS\_WATER

b. Predictors: (Constant), DONOR\_FUNDING, PRIVATE\_FUNDING, PUBLIC\_FUNDING

Sources: Authors (2020)

Table 12: Regression Coefficient

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.656	1.299		2.813	.008
	PRIVATE_FUNDING	-.631	.233	-.385	-2.710	.010
	PUBLIC_FUNDING	.373	.202	.262	1.843	.073
	DONOR_FUNDING	.350	.146	.338	2.395	.022

**Source: (Authors, 2020)**

Following the analysis, the model fitting was as follows.

$$Y = 3.656 - 0.631PrF_1 + 0.373PF_2 + 0.350DF_3$$

multicollinearity, and test for correlation were done. Normality test was done to determine whether the sample data has been drawn from a normally distributed population. Using the Shapiro-Wilk model since the data was less than 2000. If statistic ranges from zero to one and the figures are higher than 0.05 there is an indication that the data is normal (Razali and Wah, 2011).

**Test for Linearity:** Linearity assumption of linear estimation is that the dependent variable has a linear relationship with the independent variables. Computation of ANOVA statistics was used to test for the linearity assumption. ANOVA results were computed with F-statistics for both the linear and the non-linear components for each independent variable. Linearity is attributed to an insignificant deviation from linearity. The F-statistics for each independent variable deviation from linearity with the p-values is shown in Table 7. All the p-values are above 0.05 hence confirming insignificant deviations from linearity and thus linear relationships (constant slope) between the independent variables and the dependent variable. From the analysis all the variables are normally distributed.

**Test for Multicollinearity:** Multicollinearity refers to the predictors that are correlated with other predictors in the model. Severe multicollinearity can cause problems because it increases the variance of coefficient estimates, which make the estimates very sensitive to minor changes in the model. This then makes the coefficient estimates unstable and difficult to interpret. In this study, multicollinearity was

tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. It is a situation in which the predictor variables in multiple regression analysis are themselves highly correlated making it difficult to determine the actual contribution of respective predictors to the variance in the dependent variable. The Variance Inflation Factor (VIF) quantifies the severity of multicollinearity in a regression analysis. VIF's greater than 10 are a sign of multicollinearity; the higher the value of VIF's, the more severe the problem. Results in Table 8 shows that all the variables had a variance inflation factors (VIF) of less than 10: private sector funding (1.495), public sector funding (2.893) and donor funding (2.671). This implies that there was no severe collinearity with the variables thus all the variables were maintained in the regression model.

**Coefficient of Correlation Test:** To compute the correlation (strength) between the study variables and their findings the researcher used the Pearson's coefficient of correlation (R). The researcher found out there was a strong positive correlation between access to water (dependent variable) and public sector funding, Private sector funding donor funding (independent variables) as shown by Pearson Correlation values more than 0.05. With a positive correlation between access to water and Private sector funding as shown by a correlation figure of 0.047, donor funding 0.084 and public sector funding 0.321.

**Inferential Analysis:** To compute the correlation between the dependent variable and the independent variables the study conducted an inferential analysis, which involved Karl Pearson's coefficient of correlation, regression analysis, model summary and multiple regression analysis.

**Coefficient of Determination:** Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (access to water) that is explained by all the three independent variables (private sector funding, public sector funding and donor funding). The three independent variables that were studied, explain 24.8 per cent of the access to water as represented by the  $R^2$ . This, therefore, means that other effects not studied in this research contribute 75.2 per cent of the access to water. Therefore, further research should be conducted to investigate the other effects of blended finance.

**ANOVA Test:** An ANOVA of the study model was carried out to further investigate the above link and the following outcomes of the study are presented in Table 11. The study carried out an analysis of variance (ANOVA) to test the variability between private Sector funding, public Sector funding, donor funding and access to water presented in Table 116. According to outcomes presented, the p-value (sig.) was 0.010 ( $P < 0.05$ ) indicating that private sector funding, public sector funding, donor funding has a statistically significant effect on the access to water at 95% confidence level. This confirms that the ability of private-sector funding, public sector funding, donor funding to affect access to water as observed in the goodness of fit model (model summary) is statistically significant.

**Discussion of findings:** Private-sector funding revealed a negative significant regression coefficient of - 0.631 and a P-value of 0.010 at 95% level of significance. Meaning that taking all the other independent variable at zero, a unit increase in private sector funding will lead to a -0.631 change to access to water. These findings concur with Mobie (2018), Harun (2017) who found out that involvement of the private sector water system towards the poor the rural communities improved the efforts for provision of, and access to water to the poor.

Public sector funding revealed a positively significant regression coefficient of 0.373 and a P-Value of 0.073 at 95% level of significance. Meaning that a unit increase in public sector funding will lead to a 0.373 (37.3%) increase in access to water. This finding agrees with Avolio (2017), who established that there is a strong positive correlation between public-public partnerships and the water service delivery solutions in rural and peri-urban areas. However, the study disagrees with Sarmento (2015) where the government had not given enough finances in East Timor for the provision of water. Donor funding revealed a significantly positive regression coefficient relationship of 0.350 and a P-Value of 0.022 at 95% level of significance. Meaning that a unit increase in donor funding will lead to a 0.350 (35%) increase in access to water. These findings concur with Schmitz (2018), Gachu (2017) Atunga (2015) who established that donor funding significantly and positively affected the level of success of community projects of water development.

**Conclusion and Recommendations:** From the study findings, it can be seen that the private sector funding, public sector funding and donor funding significantly positively affect access to water. The study, therefore, concludes that improvement and enhancement of these sources of funding could significantly increase access to water in Kenya. The study concludes that independent variables selected for this study (private sector funding, public sector funding, donor funding) affect access to water in Kenya. The researcher recommends that government should use its influence to mobilize private financing from financial institutions to help in the financing of the water projects in the country. The government should also increase its funding to the water sector to improve the water infrastructure and thereby enhance access to water in Kenya. This way, the donors will be able to come in, to supplement the governments' effort in

enhancing access to water. This collaboration will benefit water projects through monitoring and evaluation. The government should develop enabling policies for the actualization of the financing partnerships for the water sector development and county governments should also come up with enabling regulations for equitable water supply.

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