



Effects of Governance Systems on Organizational Performance of Water Service Companies in Kenya

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Abstract

Good Governance is a process whereby public and private institutions manage resources to promote development, human rights, justice, peace, accountability, responsiveness, inclusiveness, democracy, and adherence to the rule of law. However, there are many challenges in the governance systems, including politics, corruption, lack of transparency, and lack of accountability. This research focused on the governance systems of water sector companies in Kenya from 2002 to 2021. The purpose of this study was to determine the effects of governance systems on the organizational performance of water service companies in Kenya. The study was limited to 79 registered Water and Sanitation companies in Kenya and 47 Senior Executives in charge of water and sanitation in every county in Kenya, and the CEOs/Senior Executives of the two water regulatory bodies, Water Services Regulatory Board (WASREB) and Water Resources Management Authority (WRMA). The following theories were used; The Systems Theory, The Good Governance Theory and The Resource-Based View Theory. To determine the sample size, simple random sampling techniques were used. Self-administered questionnaires and interview guide questions were used to collect primary data. A sample size of 281 respondents was used. The data was analysed using the Statistical Package for the Social Sciences (SPSS). Correlation and linear regression techniques were used to test the research hypotheses. The study found that water governance framework and performance had a statistically significant linear relationship ($r = 0.524$, $p < .05$). The study revealed that water framework variables account for 52.4% of the variability in the performance of water service companies in Kenya. The findings from the regression model indicated that the governance framework significantly influences the organisational performance of water service companies ($\beta = 0.311$, $p < .05$). The results of this study may be used by water service companies and County Governments in the formulation and implementation of strategies regarding water governance.

Introduction

Good governance is a collaborative management of public life performed by the state and the citizens. The essentials of good governance are; Legitimacy (citizens' maximum consent to and approval of public administration activities), transparency, accountability, rule of law, responsiveness, and effectiveness (Keping, 2018).



The World Bank (2015) defines governance as how power is employed to manage a country's economic and social resources for development. The good governance agenda was informed by the widespread recognition that the African crisis was political rather than economic. This means the lack of development was primarily due to political rather than economic factors. Inefficiency had been institutionalised (Ruparelia, 2017), and this was further compounded by the absence of a corporate governance framework (Ruparelia & Njuguna, 2016). According to Article 10 of the Constitution of Kenya, 2010, the national values and principles of governance include patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people; human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalised; good governance, integrity, transparency and accountability; and sustainable development. Water governance refers to the political, social, economic, and administrative systems that influence the use and management of water (Jimenez, 2015).

Water governance shapes, controls, and manages access to water and sanitation (Organization for Economic Cooperation and Development, 2015). In Article 43 of the Constitution of Kenya, 2010, every person has the right to the highest attainable standard of health, to accessible and adequate housing, and reasonable standards of sanitation, to be free from hunger, and to have adequate food of acceptable quality and to clean and safe water in adequate quantities and basic sanitation. Recurrent crises like drought add to agricultural challenges (United States Agency for International Development, 2020). County Governments play a key role in ensuring that water service providers within their counties operate on justified cost-reflective tariffs. The water sector is affected by decisions made by actors outside this sector because it is part of broader social, political, and economic developments (Jimenez, 2015).

Globally, projections for 2050 point out that the world population will reach 9.7 billion people and that water demand will rise by 55% (OECD, 2018). According to Israel's Water Authority, Israel went for over five years in drought. Many of Israel's lakes, riverbeds, and aquifers got to unprecedented 100-year lows, with the Sea of Galilee dangerously close to its "black line," the level below the intake pipes of the water pumps that send the lake's water to nearby towns. In response, Israel constructed massive desalination plants on the Mediterranean coast that now provide 70 per cent of the country's drinking water directly from the sea (Toi, 2018). The state also recycles 86% of its wastewater for agriculture. Water conservation maps, restricting land use activities above groundwater resources were produced to protect the underlying resources. Drip, called micro-irrigation, was the first watering innovation in thousands of years. On average, the drip technique saves 25%-75% of pumped water compared to flood. So, the farmer uses less water, fertiliser, and sometimes pesticides and is happy (Siegel, 2017).

Water and sanitation were one of the goals adopted to reduce poverty under the Millennium Development Goals (MDGs). The MDG target 7c was to ensure that half of the people living without sustainable access to safe drinking water and basic sanitation access by 2015 (WHO, 2018). In rural areas, piped-in water is non-existent in the poorest 40% of households. Many who lack basic sanitary engage in unsanitary activities like open defecation, solid waste disposal, and wastewater disposal. This leads to the transmission of diseases, with children being the most vulnerable (UNDESA, 2015).

Botswana is a semi-arid country that experiences low rainfall resulting in scarce water resources and endemic drought. Greater policy coherence and implementation are needed to meet increases in water demand efficiently and sustainably. To remediate the situation, Botswana used measures such as the drilling of more boreholes, the development of dams to augment the water resources, and the desalination of saline underground water, especially in areas where water demand is high and fresh water resources are scarce (Setlhogile, 2015).



Health facilities in Tanzania lack adequate Water, Sanitation, and Hygiene (WASH) facilities. Only 41 percent have access to improved water sources, 44 percent have functional toilets and 42 percent have WASH facilities in delivery rooms. The incidence of preventable diarrhea remains high and is responsible for 8 percent of deaths in Tanzanian children under five years of age (UNICEF, 2018).

The Kenya Vision 2030 goal on water and sanitation under the social pillar is access to water and sanitation for all by 2030. The achievement of this goal requires deliberate effort geared towards the development and expansion of the water sector. Among the “Big Four” agenda is food security and nutrition. The government aimed to have at least 700,000 new acres of maize, potatoes, and rice (Mutuku, 2019). For this to be a reality, it requires water for irrigation and effective water governance. More than 2.6 million Kenyans were severely food insecure as of May 2017, and this number was rapidly rising. The performance of water service companies in Kenya is influenced by governance systems (Water Services Regulatory Board (WASREB), 2016).

Chepyegon (2018) observed that the water sector can improve the current situation through monitoring strategies for water services and resources, improving the current water situation through embracing sustainable technologies, and involving target beneficiaries in water supply development and adaptive management.

Statement of the Problem

Water is crucial in attaining the SDGs, which were adopted by all United Nations Member States in 2015 as a universal call to reduce poverty by 2030. The Constitution of Kenya 2010 stipulates safe water and sanitation as a basic right of all citizens. In Kenya, only 59% have access to basic water services, and 29% have access to sanitary services (UNICEF, 2019). Recurrent droughts destroy livelihoods, triggering local conflicts over scarce resources and eroding the ability of communities to cope. Water and sanitation impact human health and increase the health bill. Poor sanitation costs Kenya 27 billion Kenya shillings each year. This could be avoided through good water governance (WASREB, 2020). The efficient performance of water utilities would lead to the realisation of the water right (WASREB, 2019).

Nicola(2017) researched on the role of NGOs and community water provision in disentangling water governance in Dar-es-Salaam. The key findings of this thesis are that water governance in Tanzania was in a complicated and ever-changing state of existence, with extra layers and policy directions being continually added with no real sign of improvement. The findings of this thesis proved that the absence of a clear policy direction and the presence of several conflicting governance mindsets can result in a convoluted and misunderstood sector, with no measure of success or indication of the most viable direction to go in future policy writing. The results generated may not represent the situation of water governance systems in Kenya. It can be argued that since data was not collected from Kenya, the environment and culture differ. The researcher noted a gap that prompted an investigation of governance systems on the performance of water companies in Kenya using data collected from within Kenya. There was a need for similar studies, and this study focused on offering guidelines on water governance systems that enhance the organisational performance of water service companies in Kenya.

Significance of the study

This study aimed to determine the impact of governance systems on the organisational performance of water service companies in Kenya. Water governance is the key entry point for progress on all SDGs at the national and regional levels (GWP, 2019). The results of this study are important to the practitioners because they can apply lessons to improve the performance of water service companies.



The study provides recommendations useful for policy decision-making in the water sector in Kenya and globally.

Literature Review

The specific areas covered are *theoretical orientation, empirical review, and conceptual framework*. The chapter reviewed the literature on governance systems and their role in the performance of water institutions. The theoretical review was intended to explore scholars' theories relevant to this research. The theories discussed included; The Systems theory, The Good Governance theory and The Resource-Based Theory.

The Systems Theory

According to the systems approach, an organisation has several components that help it function, and these components interact with each other. These are; environment, inputs, transformation process, outputs and feedback (Mithun, 2022). Systems theory focuses on the arrangement of and the inter-relations between the parts which connect them into a whole. A system is a collection of parts unified to accomplish an overall goal. If one part of the system is removed, the nature of the system is changed as well. In using the systems theory approach, the study acknowledged that governance systems have many possible roles in the strategic management of water service companies. Using this theory, managers in water service companies should recognise the various parts of the organisation and, in particular, the interrelations of the parts. It requires coordination of central administration with its programs and supervisors with workers, including all the other stakeholders (Government, customers, communities, etc).

According to Hutchinson and Otedal (2014), systems theory weakly focuses on morals and ethics. The theory is inadequate for complex organisations because it is not easy to identify the components of a system since some large departments may perform multiple functions. Systems theory only provides a framework for describing the system's elements but excludes many other important elements. It is limiting and vague.

The Good Governance Theory

According to Keping (2018), Good governance is the public administration process that maximises public interest. It creates a relationship between the political state and civil society. The essentials or attributes of good governance are; legitimacy (citizens' maximum consent to and approval of public administration activities), transparency, accountability, rule of law, responsiveness, and effectiveness. Applying the good governance theory in water management will ensure all stakeholders' full participation. If the principles advocated in this theory are well addressed, it will ensure the effective and efficient management of water sector companies in Kenya for competitive sustainability.

One challenge of applying the good governance theory in this study is that the theory is more focused on democratic governance and therefore inclined towards the political economy rather than towards modern strategic management ideals necessary for efficiency and effectiveness in organizational performance of water service companies. There are also questions like, if the nations and institutions advocating good governance are ready for it, if good governance is necessary and can be improved. Besides, corruption continues to escalate (Agama et al., 2022).

The Resource-Based View Theory

The Resourced-Based View is a managerial framework to determine the strategic resources that a firm can exploit to achieve sustainable competitive advantage. It is based on the principle that the sources of competitive advantage lie in their internal resources and the potential already available within the firm instead of focusing on the external environment to gain a competitive edge in the market



(Chigara, 2021). This means that competitive advantage depends on a firm's unique resources and capabilities rather than evaluating the external environmental opportunities and threats in conducting business. The Resource-Based View theory predicts that certain types of resources owned and controlled by firms have the potential and promise to generate competitive advantage and, eventually, superior organisational performance.

The criticism on Resource Based Value (RBV) theory is that there is no consensus on the units of analysis. Onno (2003) argues that the units of analysis are many and vary. The combination of resources and capabilities must be right for the firm to leverage on RBV theory.

Empirical Literature Review

According to Davidson (2013), Governance scholarship has typically been limited to individual elements such as frameworks (hierarchical, market, or network) and tools (regulation) or actors (government). His research aimed to characterise and explain transformations in water governance to offer insight into how more effective governance processes can be created. The research identified the transitions between governance frameworks and the social, economic, and environmental tensions and drivers that initiated change.

Kihara (2016) focuses on the role of good corporate governance in the water sector in Kenya. The study was to understand and assess whether the corporate governance systems of water service providers in Kenya effectively address the challenges posed by limited water resources and, if so, to what extent. The study used a comparative analysis of the experiences of water service management in three African countries: South Africa, Uganda, and Ghana. It identifies the best practices that should be adopted in Kenya and the pitfalls that should be avoided. The findings indicated that the principal cause of the problems in Kenya's water sector springs from poor governance practices of the water services providers (WSPs). The data was collected from other countries, so some ideas from this study may be relevant to the Kenyan context. Still, it can also be argued that the environment and culture differ.

Chepyegon (2018) researched on Water Resources and Protection. The report was to expose the causes of the challenges the water sector management faces and discuss opportunities for improvement. The study indicated that the key challenges faced by the Kenyan Water Sector Management include; Operation and Maintenance Challenges, inadequate funding of the sector and disproportionate, funding within the Sector, low Social acceptance of interventions, and conflicting interests amongst various water users.

The Conceptual Framework

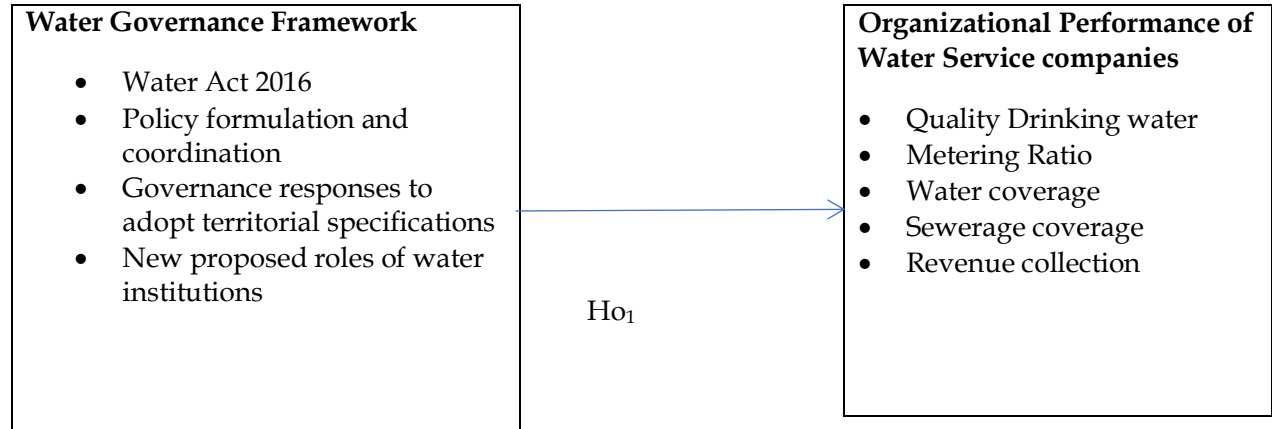
The conceptual framework adopted in this study depicts a possible linear relationship between the independent variable (Water Governance framework) and the dependent variable (Organizational Performance of Water Service Companies). The water governance framework includes the Water Act 2016, policy formulation and coordination, Government responses in adopting territorial specifications and new proposed roles of various water institutions according to the Water Act 2016.



Figure 1: Conceptual Framework

Independent variable

Dependent Variable



Source: Author, 2023

Research Methodology

The research philosophy adopted in this study was positivism. The researcher collected data and developed hypotheses which were tested and confirmed. An explanatory Research design was conducted to find the problem that was not studied before in-depth. In this study, the researcher employed both self-administered interview questions and questionnaires. For this study, the target population (target respondents) comprised 899 Executives and Managers derived from all the 79 registered Water and Sanitation Companies, 47 County Officers (C.Os) from each county in Kenya, and two (2) CEOs or Senior Managers from the two water regulatory bodies (WASREB and WRA). This study used probability sampling to determine the sample size. The sampling technique applied was simple random sampling. This was applied to select a representative sample from 899 Executives/managers in Kenya's 79 water and sanitation companies. The sampling frame for this study consisted of 948 members. The population Sample size was calculated using the Yamane (1967) formula resulting in a sample size of 281 respondents divided proportionally among the 79 companies based on the company's population size.

$$n = \frac{N}{1 + N(e^2)}$$

Where

N -is the population size of the study (N=948)

n - Sample size of the study

e - is the desired margin of error (0.05)

$$n = \frac{948}{1 + 948 * 0.05^2} = 281$$



After setting aside 47 slots for interviews with the Chief Officers (C.Os) in Water and Sanitation departments from all the 47 counties in Kenya and two slots for the CEOs, WASREB and WRMA, the remaining 232 slots for other respondents were distributed within each company using proportional allocation formula as shown;

$$\text{Company allocation} = \frac{\text{Company Population}}{\text{Target Population}} \times 232$$

= Sample contribution per Water Company

The study used both questionnaires and interview guides to collect primary data. Questionnaires consisted of open and closed-ended questions designed to elicit specific responses for both qualitative and quantitative analysis. Questionnaires are preferred because they are cheap compared to other data collection methods (Saunders, Lewis & Thornhill, 2019). Questionnaires collected quantitative data from managers/supervisors from water service companies on a drop-and-pick method. Qualitative data was collected by interviewing the CEOs from WASREB and WRMA, and the C.Os. Closed-ended questions save time and money (Saunders et al., 2019). The questionnaire was designed on a five-point Likert-type scale and linked governance systems and organisational performance of water service companies in Kenya. The study used descriptive research, which investigates through surveys. The secondary sources whose data was used by the researcher consisted of readily available reports and already compiled statistical statements. Targeted documents included WASREB Annual Reports and Auditor's General Financial Performance Reports from Water and Sewerage Companies in the sample population. The study used a mixed method design because there are quantitative and qualitative elements.

The researcher used a pilot study sample of 10% of the sample in the parent study. However, the respondents in the piloting were not included in the final report to avoid bias. Through piloting, the researcher tested the quality of instrumentation that was used during data collection and analysis. To ensure that the research instruments collect the desired data, validating them before they were administered to the sample population was important. One of the indicators that measurement is valid is high reliability (Fiona, 2020). The researcher used Cronbach's alpha since it is a coefficient of internal consistency commonly used to estimate reliability. A reliability coefficient of 0.7 and above was assumed to reflect the internal reliability of the instruments.

Table 1: Reliability Analysis

Item	No. of items	Alpha Value	Verdict
Governance Framework	9	0.704	Reliable

Source: (Pilot Data, 2023)

In this study, data were analysed using SPSS. Cooper and Schindler (2017) note that using percentages is important for two reasons; first, they simplify data by reducing all the numbers to a range between 0 and 100. Second, they translate the data into standard form with a base of 100 for relative comparisons. Inferential statistics are used to make predictions (inferences) from that data. With inferential statistics, you take data from samples and make generalisations about a population (Stephanie, 2014). The inferential statistics considered for this study were hypothesis testing, correlation analysis, and regression analysis. Through hypothesis testing, the study establishes whether there is a relationship between the independent variable (Water sector Governance Framework) and the dependent variable (Organizational Performance). Results and Discussions



Research results are presented using descriptive and inferential statistics and hypothesis testing for significant associations between the variables.

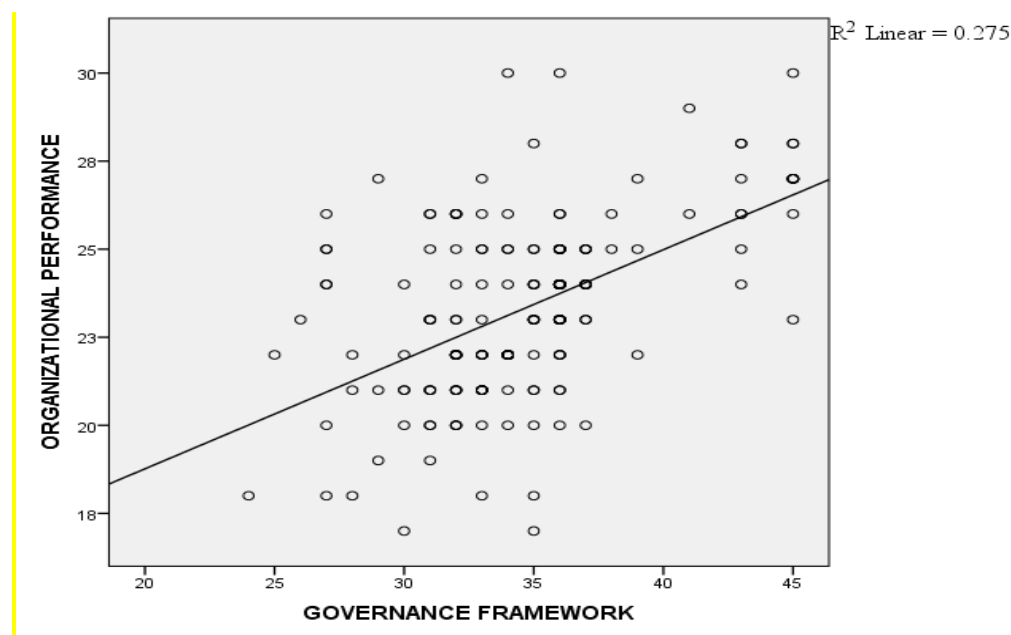
Descriptive Statistics for Governance Framework

This part presents a descriptive analysis of the effectiveness of the water governance framework on the organisational performance of water service companies in Kenya. This study design is paramount when describing the nature or the behaviour of a subject or variable (Marianov, Kochubei, Roman, Conquest, Stampfl & Jiang, 2021). The descriptive data was obtained using a 5-point Likert scale and represented using frequencies, percentages, and standard deviation. From the findings, most respondents (57.4%) agreed that their company's framework considers employees at lower levels, with a further 31.9% strongly agreeing. Most respondents (53.7%) agreed that their company has water policies and reforms necessary for a sound governance system, with 29.8% strongly agreeing. Most respondents (51.1%) agreed that their company adopts territorial specifications in responding to governance issues, with 22.9% strongly agreeing. 47.9% of respondents agreed that their company had put a comprehensible legal framework with a powerful and independent regulatory regime to help attain an effective water governance framework, with 20.2% strongly agreeing. Most of the respondents (56.9%) agreed that their company engages all stakeholders at all levels to design and implement place-based policies, with a further 21.8% strongly agreeing. Most respondents (58.5%) agreed that their company uses participatory mechanisms and accountability, which help address disparities in service provision and help policymakers focus on inequity and its deeper causes, with a further 25% strongly agreeing. Most of the respondents (56.4%) agreed that their company's functional/departmental units have operational strategies clearly showing how they align with the overall strategy, with a further 29.8% strongly agreeing. From the findings, the water governance framework influenced the performance of water service companies. The findings also agree with Davidson's (2013) study on transformation in water governance.

Test for Linearity

Scatter plots were used to test for linearity between the independent and dependent variables. The line of best fit developed showed a linear relationship between the governance framework and the organisational performance of water service companies in Kenya. This is shown in the scatter diagram Figure 2 below.

Figure 2: Scatter Diagram for Governance Framework and Performance



Source: Survey data, 2023

Test for Normality

The study tested for normality of the independent variable (Governance Framework) using Kurtosis and Skewness. The values for Kurtosis and Skewness should lie between -1 and +1 for the data to satisfy the normality assumption. From the findings, the Kurtosis and skewness values for Governance Framework were between -1 and +1, implying that the data was normally distributed. The findings were as displayed in Table 2 below;

Table 2: Kurtosis and Skewness

	Mean	Std. Dev.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Err	Statistic	Std. Err
Governance Framework	34.62	4.192	0.553	0.177	0.901	0.353

Source: Survey data, 2023

**Table 3: Hypothesis Testing for Governance Framework and Performance**

Hypothesis	Computed Chi-Square Value	Degrees of Freedom	Chi-Square Critical value	P-Value	Level of Significance	Decision
H ₀₁	472.798	234	270.684	0.002	0.05	Reject the Null Hypothesis

Source: Survey data, 2023

The Chi-Square test was used to test H₀₁ at a 5% level of significance. For the null hypothesis to be rejected the computed value must be greater than its corresponding critical value or the P-Value must be less or equal to the level of significance. In this particular case, the computed Chi-square value for H₀₁ of 472.798 was greater than its corresponding critical value of 270.684. Equally, the P-Value of 0.002 was less than the 0.05 level of significance. In both cases, the Chi-square test indicated that the null hypothesis H₀₁ should be rejected in favor of the alternative hypothesis. Therefore, it was concluded that there is sufficient evidence of a significant association between the water governance framework and the organizational performance of water service companies in Kenya.

Table 4: Regression Coefficients for Governance Framework and Performance

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	12.543	1.292		9.711	0.001
GF	0.311	0.037	0.524	8.399	0.002

Source: Survey data, 2023

Qualitative analysis

Interviews were conducted with the two water regulatory bodies, WASREB and WRMA Senior Managers. WASREB's mission is to provide a regulatory environment that facilitates efficiency, effectiveness, and equity in providing water services in line with the human rights to water and sanitation (WASREB, 2020). WRMA regulates water resources in Kenya. The CEOs in charge of water and sanitation in county offices develop, implement and evaluate water and sanitation strategic plans, programs, and projects in collaboration with other departments and stakeholders.

The interview method was preferred because the respondents had an in-depth understanding of water governance systems. Most of the respondents from various water service companies indicated that they used a governance framework that considered their employees, and the operations were based on company policies. The analysis of the qualitative data was that the governance framework had 59.96%. The findings of this study indicated that governance framework contributed to the organizational performance of water service companies in Kenya and need to be considered in making decisions about water governance systems.



Discussion/Results

From the findings, the computed Chi-square value for H_{01} of 472.798 was greater than its corresponding critical value of 270.684. Equally, the P-Value of 0.002 was less than the 0.05 level of significance. Both indicated that there is sufficient evidence of a significant association between the water governance framework and the organizational performance of water service companies in Kenya. The study found that water governance framework and performance had a statistically significant linear relationship ($r = 0.524$, $p < .05$). The study revealed that the independent variable (water governance framework) accounts for 52.4% of the variability in the performance of water service companies in Kenya. The findings from the regression model indicated that the governance framework significantly influences the organisational performance of water service companies ($\beta = 0.311$, $p < 0.05$).

Conclusion

This study examined the effect of the water governance framework on the organisational performance of water service companies in Kenya. From the research findings, the study concludes that the contribution of the water governance framework to the organisational performance of water service companies is moderately positive and statistically significant. The study arrived at the following recommendations; Water service companies should embrace and implement the water governance framework developed by OECD as an analytical tool for policymakers to make appropriate decisions to bridge policy gaps and overcome governance challenges.

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