INFLUENCE OF STRATEGY FORMULATION ON PERFORMANCE OF WATER SERVICE PROVIDERS IN THE LOWER-EASTERN COUNTIES OF KENYA

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ABSTRACT: Kenya's water service providers face significant performance challenges, with Non-Revenue Water exceeding 45% and water coverage at only 60%. These inefficiencies result in annual revenue losses of approximately Kshs 15.8 billion, significantly constraining agricultural productivity in an agriculture-dependent economy. This study examined the influence of strategy formulation on performance of water service providers in the Lower-Eastern counties of Kenya. The study aimed to determine the influence of strategy formulation on performance of water service providers in the Lower-Eastern counties of Kenya. The research was anchored on four complementary theories: Resource Based View theory, which emphasizes strategic application of distinctive organizational resources; Dynamic Capabilities Theory, focusing on adaptive capacity development; Agency Theory, addressing principal-agent relationships in state-owned water resources; and Stakeholder Theory, recognizing diverse interests in water resource management. The study adopted a positivist philosophy using descriptive survey design with mixed-methods approach. The target population comprised 758 staff across ten licensed water service providers. Stratified purposive sampling yielded 183 respondents determined by Yamane's formula. Data collection utilized self-administered questionnaires with pre-testing confirming reliability (Cronbach's Alpha: 0.73-0.86). Analysis employed SPSS Version 21 for descriptive and inferential statistics. Bivariate regression analysis revealed a significant positive relationship between strategy formulation and performance ($r = 0.426$, $p < 0.001$). Strategy formulation explained 18.2% of performance variation ($R^2 = 0.182$). The regression equation $Y = 2.077 + 0.365X_1 + \varepsilon$ demonstrated that each unit increase in strategy formulation resulted in 0.365 unit improvement in performance ($\beta = 0.365$, $t = 5.771$, $p < 0.001$). The F-statistic (33.302) confirmed model significance. Strategy formulation significantly influences water service provider performance.. Water service providers should establish comprehensive stakeholder engagement frameworks, invest in strategic planning capabilities, implement balanced performance measurement systems, and prioritize research and development investments for sustainable competitive advantage.

Key Words: Strategy Formulation, Organisational Performance, Water Service Providers, Eastern Counties of Kenya

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1. INTRODUCTION

A. Background of the Study

Water service providers play a fundamental role in ensuring effective distribution of water from source to end users. Their performance is primarily measured by their ability to supply reliable, adequate, quality, and affordable water to communities. However, these organizations face numerous challenges in meeting water demand effectively. A critical yet often overlooked challenge is the global limitation of potable water sources, which is further constrained by quality degradation through chemical and microbial pollutants (Botkin & Keller, 2011).

Water shortage is exacerbated by distribution losses, which remain within the control of water service providers. In Kenya, Non-Revenue Water (NRW) exceeds 45% (WASREB, 2022), resulting in annual revenue losses of approximately Kshs 15.8 billion (Mawia, 2021). This figure is significantly higher than the global water loss estimate of 35% (Nono et al., 2024), highlighting the urgent need for improved operational efficiency.

Kenya's agriculture-based economy suffers from low productivity partly due to inadequate water supply services. This challenge becomes more pressing as Kenya strives to achieve its Vision 2030 goal of becoming a newly industrialized middle-income country, which will inevitably increase water demand. Effective water resource management strategies can significantly improve water supply services in Kenya. Countries like Israel and Saudi Arabia, despite having limited water resources, have achieved remarkable water security through innovative and effective water resource management strategies (Organisation for Economic Co-operation and Development [OECD], 2023). Similarly, South Africa, categorized as a water-scarce country like Kenya, provides water supply below 1000m^3 per capita annually (Molobela, 2011), comparable to Kenya's provision as classified by the United Nations Environment Programme (UNEP, 2005).

The global phenomenon of water sector overregulation affects operational efficiency. In Africa particularly, water utilities operate with limited control over their operational scope (Mbuvi, 2012), functioning within predefined licenses and jurisdictions to serve diverse interests including geographic equalization and standard of living considerations (Nono et al., 2024).

Water sources in Lower-Eastern Kenya primarily include rivers and water springs, which are unevenly distributed across the region. Rainwater, which represents a more dependable source in terms of quality (Gakungu, 2013; Patil, 2006; World Health Organization [WHO], 2020), remains underexploited despite its potential. This suggests that factors beyond water source availability contribute to the poor performance of water service providers in Lower-Eastern Kenya. The poor performance of water service providers is a nationwide challenge, particularly due to high NRW rates, with Nairobi recording over 47% (The World Bank Group, 2021). Kenya's water coverage of 60% (WASREB, 2022) significantly lags behind Latin American cities such as Lima (91%), Panama (92%), Quito (97%), and San José (100%) (The World Bank Group, 2021).

Strategy Formulation

Strategy formulation occurs at multiple organizational levels, positioning firms competitively within their business environment (Dress et al., 2008). This process emphasizes two critical levels: corporate level and business level strategies. Corporate level strategy focuses on determining the type and spectrum of business portfolio the organization should develop and maintain. Business level strategy concentrates on how organizations should conduct their

operations most effectively using available resources to outperform competitors. Water service providers in Lower-Eastern Kenya must engage internally across all organizational levels, particularly at strategic, tactical, and operational levels, to formulate strategies that drive superior organizational performance. This comprehensive engagement ensures alignment between strategic intent and operational execution.

Performance and its Measurement

Organizational performance represents a multidimensional concept that remains fluid in definition (Ogolla, 2020). In business contexts, performance can be considered a comparative measure of an organization's financial or non-financial success. Financial success is typically measured through metrics such as profit, Return on Assets (ROA), and Return on Equity (ROE) (Ngure et al., 2018). Non-financial success encompasses market share, customer base, satisfaction, and loyalty, which are often subjective and qualitative metrics (Kairu, 2022). Financial measurements can be both inward-looking using longitudinal data and outward-looking using cross-sectional data for benchmarking against other firms to assess competitiveness. The balanced scorecard approach adopted in this study facilitates holistic performance measurements by incorporating multiple dimensions (Senaji & Ogolla, 2017; Njeru, 2015).

Water Demand

Global water usage is distributed approximately 50% for agriculture, 40% for industrial purposes, and 10% for domestic use, though these proportions vary according to regional economic development and activities (Molobela, 2011). Despite this distribution, water demand is seldom met due to poor performance of water service providers (The World Bank Group, 2021; WASREB, 2022). This challenge is compounded by uneven distribution of water sources globally and contamination during transit from sources to final consumption points.

B. Statement of the Problem

Kenya's economic foundation relies heavily on agriculture, yet inadequate water supply significantly constrains the exploitation of the country's agricultural potential. Research conducted by Atheru et al. (2021) revealed that 92% of Meru County residents experience domestic water scarcity (Kenya National Bureau of Statistics [KNBS], 2019). This finding illustrates the critical challenge facing a region where agriculture depends primarily on seasonal rainfall and limited water distribution infrastructure. The prevalence of Non-Revenue Water exceeding 45% in Kenya serves as a key indicator of operational inefficiency and suboptimal organizational performance within the water sector. The magnitude of this challenge, coupled with significant economic losses, suggests that current operational approaches are inadequate for addressing the sector's performance requirements.

The central premise of this study is that comprehensive water management strategy formulation by water service providers could enable substantially improved performance outcomes. This hypothesis is supported by international examples of water-scarce countries that have achieved remarkable improvements in water service delivery through strategic innovation and effective

resource management. Therefore, this research examines the influence of strategy formulation on the performance of water service providers in the Lower-Eastern counties of Kenya, aiming to identify strategic approaches that can enhance service delivery, reduce operational inefficiencies, and ultimately improve water access and quality for served populations.

C. Purpose of the Study

The specific objective of this study was to determine the influence of Strategy Formulation on performance of water service providers in the Lower-Eastern counties of Kenya.

D. Research Hypothesis

H_{03}: Strategy Formulation does not significantly influence performance of water service providers in Lower-Eastern, Kenya.

2.0 LITERATURE REVIEW

A. Resource Based View (RBV) Theory

This study is anchored on the Resource Based View (RBV) theory. The Resource Based View was originally propounded by Penrose in 1959 (cited by Nyagaki et al., 2021 and Mbithi, 2024) and subsequently developed by Barney in 1991 (as cited by Riungu, 2018 and Keroti, 2022). The theory posits that firms are internally heterogeneous entities that differ fundamentally because each organization possesses distinctive bundles of resources including skills, capabilities, and tangible assets. The strategic application of these unique resource configurations distinguishes each firm's performance level and competitive positioning within the market (McGee et al., 2010).

The theory suggests that sustainable competitive advantage emanates from resources that exhibit four critical characteristics: they must be valuable, rare, inimitable, and non-substitutable, collectively termed VRIN attributes (Mbithi, 2024). The central argument of RBV maintains that organizations possessing VRIN resources can achieve superior performance and sustained competitive advantage over competitors lacking such resources (Nyagaki et al., 2021). The theory emphasizes internal resource optimization rather than external market positioning as the primary determinant of organizational success.

The Resource Based View is particularly relevant to this study because water service providers in Lower-Eastern Kenya operate within similar regulatory environments and serve comparable markets, yet demonstrate varying performance levels. While water as a natural resource is generally available to all regional entities almost equally, the theory suggests that competitive advantage derives from how organizations strategically configure and deploy their unique resource combinations. Water service providers can differentiate themselves through superior strategy formulation capabilities, technical expertise, organizational processes, and managerial competencies. These intangible resources, when strategically formulated and implemented, enable some providers to achieve better service delivery, operational efficiency, and financial performance compared to others operating in identical environments.

B. Empirical Review

Strategy Formulation and Organizational Performance

Strategic management practices have been extensively studied across various sectors, demonstrating their critical influence on organizational performance. Research by Nyagaki et al. (2021) examining commercial-based parastatals in Nairobi County found that strategic management practices significantly influence organizational performance. Their study emphasized the importance of strategic planning, implementation, and evaluation in achieving superior performance outcomes.

Similarly, Kibet et al. (2023) assessed organizational innovation effects on small and medium enterprise performance in Laikipia County, revealing that strategic innovation initiatives directly correlate with improved business performance. Their findings demonstrated that organizations implementing comprehensive strategy formulation processes achieved better market positioning and financial performance compared to those with ad-hoc strategic approaches. Kihara's (2016) research on manufacturing small and medium firms in Kenya provided insights into strategy implementation's influence on performance. The study revealed that firms with well-formulated strategies that were effectively implemented achieved superior performance metrics including increased market share, improved profitability, and enhanced operational efficiency.

Performance Measurement in Service Organizations

Performance measurement in service organizations, particularly utilities, requires comprehensive approaches that capture both financial and non-financial dimensions. Mawia and Kalunda's (2021) study on utility efficiency's influence on financial sustainability of water service providers in Kenya highlighted the importance of operational efficiency metrics in determining overall organizational performance.

Research by Senaji and Ogolla (2017) examined the relationship between strategic agility and organization performance, finding that organizations with higher strategic agility demonstrated superior performance across multiple dimensions. Their study emphasized the importance of balanced performance measurement approaches that capture strategic, operational, and financial outcomes.

Water Service Provider Performance

The performance of water service providers has been extensively studied, particularly in developing countries facing water scarcity challenges. The World Bank Group (2022) performance analysis of African water utilities identified key performance indicators that distinguish high-performing utilities from their counterparts. These indicators included operational efficiency, customer satisfaction, financial sustainability, and service coverage expansion. Research by Atheru et al. (2021) focusing on water scarcity in Meru County provided insights into regional water service challenges. Their findings indicated that strategic interventions by water service providers could significantly improve service delivery outcomes and customer satisfaction levels.

3.0 RESEARCH METHODOLOGY

This study adopted a positivist philosophy, assuming that reality exists objectively and can be measured independently of researcher bias (Creswell & Creswell, 2018). Guided by this approach, the research aimed to identify causal relationships using empirical methods. A descriptive survey design was employed, integrating a mixed-methods approach that combined quantitative closed-ended questionnaires with qualitative open-ended questions. Data were collected through a cross-sectional survey conducted over two months (February–March 2025). The target population comprised 758 staff across ten licensed water service providers in Lower-Eastern Kenya. Due to practical constraints, stratified purposive sampling was used, yielding a sample size of 263 respondents determined by Yamane's formula (Kothari & Garg, 2014). Proportionate sampling ensured representation across top management, middle management, and operational staff. Data were collected via self-administered questionnaires following approvals from Kenya Methodist University and NACOSTI. Pre-testing of 10 questionnaires (3.8% of the sample) confirmed validity and reliability, with Cronbach's Alpha values ranging from 0.73 to 0.86. Data analysis was conducted using SPSS Version 21, employing descriptive and inferential statistics, including multiple regression across three models to examine relationships between independent and dependent variables.

4.0 RESEARCH FINDINGS AND DISCUSSION

A. Response Rate

The study achieved a total of 154 completed questionnaires out of 183 distributed, resulting in an overall response rate of 84.2% based on questionnaires issued, and 58.6% relative to the intended sample size. The response rate is summarised in Table 1

Table 1: Response Rate

Water Service Provider	Target	Distributed	Completed	Response Rate (%)	Contribution to Overall (%)
Provider A	35	20	19	95.0	12.3
Provider B	42	25	25	100.0	16.2
Provider C	28	15	12	80.0	7.8
Provider D	31	18	15	83.3	9.7
Provider E	38	22	21	95.5	13.6
Provider F	45	28	24	85.7	15.6
Provider G	24	12	9	75.0	5.8
Provider H	33	19	14	73.7	9.1
Provider I	29	16	10	62.5	6.5
Provider J	23	8	5	62.5	3.2
Total	**328**	**183**	**154**	**84.2**	**100.0**

Source: Field Data (2025)

Response rates varied across the ten water service providers, ranging from 62.5% to 100%, influenced by geographical spread of organizations and concentration of relevant staff at headquarters. Higher response rates were recorded in organizations with staff located near central offices, while lower rates were noted where respondents were dispersed across distant regions. The achieved overall response rate is considered excellent; Mugenda and Mugenda

(2003) suggest that rates above 50% are adequate, above 60% are good, and over 70% are very good. Kothari and Garg (2014) further note that rates exceeding 70% are excellent for survey-based research.

B. Descriptive Analysis

Descriptive statistics summarize and organize data using statistical measures such as mean and standard deviation, providing insights into patterns, trends, and distributions within the dataset. Respondents were asked to select scores for each statement on a five-point Likert scale from 1 to 5, where Strongly Disagree (SD) was represented by 1 and Strongly Agree (SA) by 5. Continuous grouped scales were created: Strongly Disagree (1.0-1.8), Disagree (1.8-2.6), Neutral (2.6-3.4), Agree (3.4-4.2), and Strongly Agree (4.2-5.0).

Descriptive Statistics on Strategy Formulation

Respondents replied to 14 statements based on the five-point Likert scale, with results presented in Table 2.

Table 2: Descriptive Statistics on Strategy Formulation

Statement	N	Min	Max	Mean	S.D
Board of Directors is involved in strategy formulation	154	1	5	4.21	0.994
Management regularly clarifies vision and mission statements to staff and customers	154	1	5	3.93	0.997
Vision and mission statements are well aligned to environmental changes	154	1	5	4.04	0.948
Meetings are held regularly to review plans and strategies	154	1	5	3.82	0.936
The company has good plans and budget for its activities	154	1	5	3.86	0.956
The company sets strategic objectives periodically with clear goals and targets	154	1	5	3.90	0.912
Company policies are crafted collectively by staff members and approved by top management	154	1	5	3.66	1.091
Staff go for retreats regularly for planning, budgeting and policy formulation	154	1	5	3.01	1.128
All staff participate during strategic planning process	154	1	5	3.22	1.158
The organization conducts SWOT analysis	154	1	5	3.43	0.967
The organization uses SWOT analysis feedback to evaluate and make new strategies	154	1	5	3.44	0.982
Managers consult opinion of staff when formulating strategies	154	1	5	3.45	1.085
Quality standards are normally included for the organization's water in its plans	154	1	5	3.95	0.968
During planning, the scope of the company's water coverage is usually evaluated	154	1	5	3.98	0.931

All 154 respondents reacted to the 14 questions, with 12 statements answered affirmatively with mean scores above 3.4 out of 5. Most statements generated highly positive responses with

standard deviations below 1.0, indicating that respondents took positive and convergent positions about strategy formulation in their organizations. However, two statements received negative responses: staff retreats for planning, budgeting and policy formulation (mean score of 3.01) and all staff participation during strategic planning processes (mean score of 3.22). This suggests that while organizations endorse strategy formulation in their planning processes, lack of inclusivity of all stakeholders reduces the effectiveness of these efforts.

Descriptive Statistics on Performance

The results of 17 statements on performance are presented in Table 3.

Table 3: Descriptive Statistics on Performance

Statement	N	Min	Max	Mean	S.D
Customer feedback has been positive and customers are satisfied with services	154	1	5	3.36	0.906
Customer complaints have reduced in the last five years	154	1	5	3.59	0.933
Number of customers has increased in the last five years	154	1	5	4.08	0.921
More customers have been connected as planned in the last five years	154	1	5	3.86	0.871
The organization has been making good profits in the last five years	154	1	5	3.07	1.109
Revenue collected has increased in the last five years	154	1	5	3.47	1.017
Audited accounts have shown high ROA in the last three years	154	1	5	3.15	0.975
Audited accounts have shown high ROE in the last three years	154	1	5	3.16	0.887
The organization finances most operations from revenue collected	154	1	5	4.16	0.852
Geographical area served has expanded significantly in the last five years	154	1	5	3.82	0.896
The organization can finance capital expenditures without taking loans	154	1	5	3.09	1.157
Employee base has increased in the last five years	154	1	5	3.47	1.024
Latest equipment and technology have been acquired in the last five years	154	1	5	3.25	1.056
Latest equipment and technology have greatly improved customer service	154	1	5	3.35	1.013
Research funds have been increasing over time in the last five years	154	1	5	2.90	1.074
Water supply sources have been diversified and expanded in the last five years	154	1	5	3.42	0.995
Water products and uses have been diversified in the last three years	154	1	5	3.21	1.095

All 154 respondents reacted to the 17 statements, with mixed results indicating varying performance levels across different dimensions. Notable positive performance indicators included customer base growth (mean 4.08) and operational self-financing (mean 4.16), suggesting strong customer acquisition and revenue generation capabilities. However, several areas showed concerning performance levels, particularly research funding (mean 2.90) and profitability (mean 3.07), indicating need for strategic interventions in these areas.

C. Inferential Analysis

This section presents inferential analysis used to determine the relationship between strategy formulation and performance outcomes. Statistical methods including regression analysis provide insight into the strength and significance of variables affecting water service provider performance.

Model Summary

Table 4 presents the summary of the regression model. The correlation coefficient (R = 0.426) indicates a moderate positive relationship between strategy formulation and organizational performance. The coefficient of determination ($R^2 = 0.182$) shows that 18.2% of the variation in organizational performance can be explained by strategy formulation. The adjusted R^2 (0.176) accounts for the number of predictors and confirms that the model provides a reasonable fit to the data. The standard error of estimate (0.537) suggests that deviations of the observed values from the predicted values are relatively small.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.426	0.182	0.176	0.537

Predictors: (Constant), Strategy Formulation

ANOVA

The ANOVA results in Table 5 indicate that the regression model is statistically significant (F = 33.302, p < 0.001). This demonstrates that strategy formulation has a significant effect on organizational performance.

Table 5: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	9.603	1	9.603	33.302	0.000
Residual	43.255	152	0.288		
Total	52.858	153			

Dependent Variable: Performance
Predictors: (Constant), Strategy Formulation

Regression Coefficients

Table 6 presents the regression coefficients for the relationship between strategy formulation and organizational performance. The unstandardized coefficient for strategy formulation (B = 0.365, p = 0.000) indicates that a one-unit increase in strategy formulation is associated with a 0.365-unit increase in organizational performance. The corresponding t-value (t = 5.771) demonstrates that this effect is statistically significant at the 0.01 level. These results confirm that strategy formulation is a significant positive predictor of organizational performance.

Table 6: Beta Coefficients for Strategy Formulation

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.077	0.238		2.998	.000
	Strategy Formulation,	0.365	0.063	0.426	5.771	.000
a. Dependent Variable: *Performance*						

5.0 SUMMARY OF THE STUDY

Strategy Formulation

The analysis reveals that water service providers in Lower-Eastern Kenya demonstrate varying levels of strategy formulation practices. The study found strong evidence of board involvement in strategy formulation (M = 4.21, SD = 0.994) and alignment of vision and mission statements with environmental changes (M = 4.04, SD = 0.948). However, limitations exist in inclusive strategic planning processes, particularly regarding staff retreats (M = 3.01, SD = 1.128) and comprehensive staff participation (M = 3.22, SD = 1.158). The regression analysis confirms that strategy formulation significantly influences performance outcomes ($\beta = 0.365$, $p < 0.001$), explaining 18.2% of performance variation. This relationship demonstrates that water service providers with more comprehensive strategy formulation processes achieve superior performance across multiple dimensions. The findings support the theoretical foundation provided by the Resource Based View and Dynamic Capabilities Theory, emphasizing the importance of strategic resource deployment and capability development.

6.0 CONCLUSION

The study concludes that strategy formulation is a fundamental driver of performance improvement in water service providers in Lower-Eastern Kenya. The significant positive relationship between strategy formulation and performance demonstrates that organizations investing in comprehensive strategic planning processes achieve better outcomes in customer service delivery, operational efficiency, and financial sustainability. While water service providers demonstrate strong governance involvement in strategy formulation and maintain alignment between strategic intent and environmental changes, significant opportunities exist for improving stakeholder inclusion in strategic processes. The limited participation of all staff members in strategic planning represents a missed opportunity for leveraging diverse perspectives and building organizational commitment to strategic initiatives. The findings reveal that effective strategy formulation can address some of the critical challenges facing water service providers in Kenya, including high non-revenue water rates, limited coverage expansion, and financial sustainability concerns. Organizations that embrace comprehensive strategy formulation processes are better positioned to navigate the complex operating environment and achieve sustainable performance improvements.

7.0 RECOMMENDATIONS

Based on the research findings, the following recommendations are proposed:

Water service providers should strengthen their strategy formulation processes by establishing comprehensive stakeholder engagement frameworks. This should include regular strategic retreats involving all organizational levels, systematic consultation processes that capture diverse perspectives, and structured feedback mechanisms that inform strategic decision-making. These initiatives should ensure continuous dialogue, shared ownership of strategic objectives, and active participation of all stakeholders in developing and implementing strategic initiatives. Management should invest in building strategic planning capabilities across all organizational levels. This includes training programs for strategic planning methodologies, development of strategic thinking skills among middle management, and establishment of strategic planning units that can coordinate and monitor strategic initiatives. Such investments will enhance the quality and effectiveness of strategy formulation processes.

Organizations should implement comprehensive performance measurement systems that capture both financial and non-financial performance dimensions. This includes adoption of balanced scorecard approaches, establishment of key performance indicators aligned with strategic objectives, and regular performance review processes that inform strategic adjustments. These systems will provide critical feedback for continuous strategy refinement. Water service providers should prioritize research and development investments to support strategic innovation. This includes allocation of dedicated research budgets, establishment of innovation units, and development of partnerships with research institutions. Such investments will enhance organizational capabilities for strategic adaptation and competitive advantage.

9.0 Areas for Further Research

Future research should consider replication of this study using different methodologies, examination of additional independent variables influencing water service provider performance, and investigation of similar relationships in other regions of Kenya. Longitudinal studies examining the long-term impact of strategy formulation on performance would provide valuable insights into sustainability of performance improvements. Additionally, comparative studies examining strategy formulation practices across different utility sectors would enhance understanding of sector-specific strategic requirements.

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