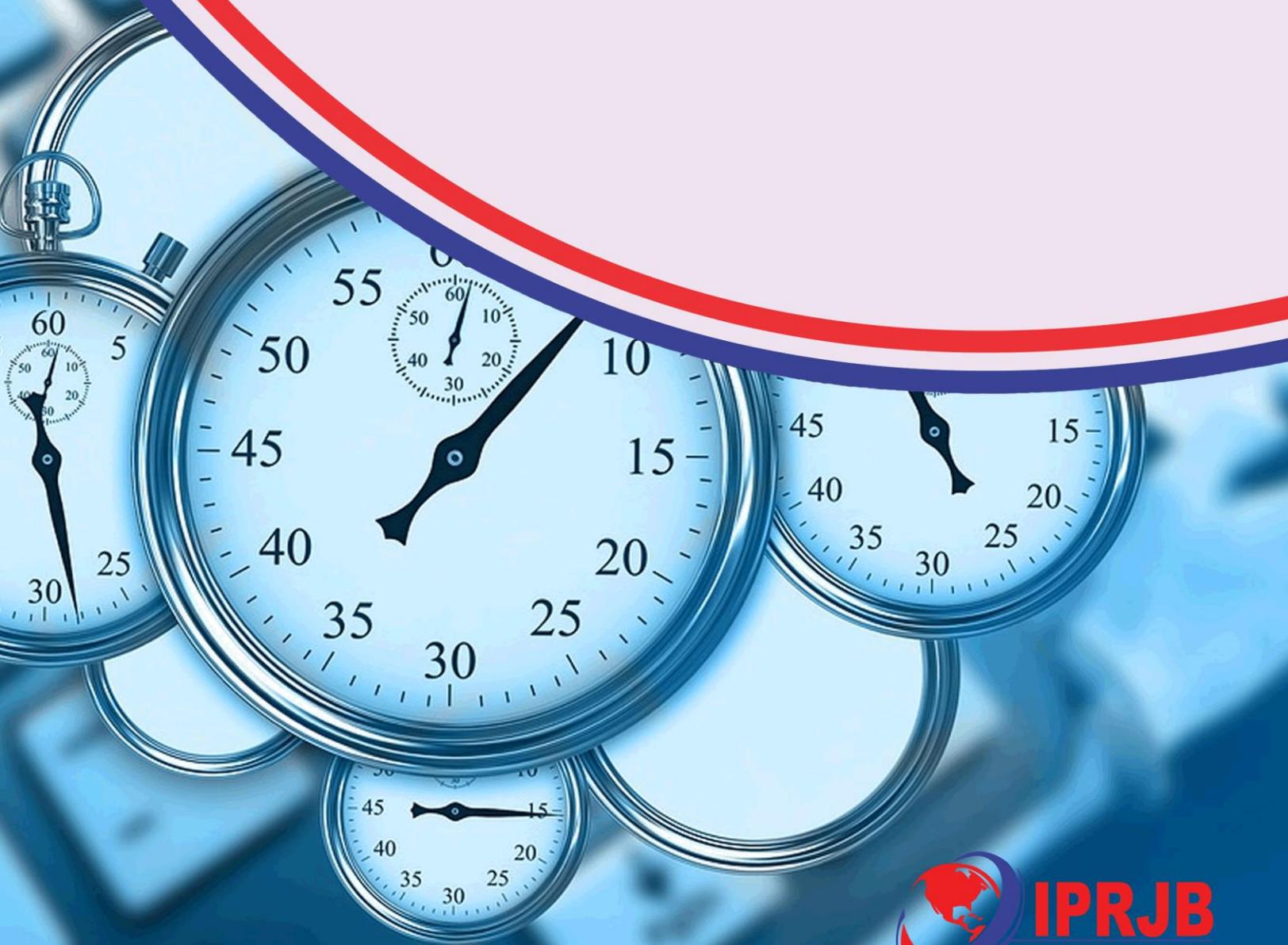


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**Effect of Environmental Scanning and Strategy Formulation on the Performance of
Humanitarian Support Organizations in Arid and Semi-Arid Counties, Kenya**

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Effect of Environmental Scanning and Strategy Formulation on the Performance of Humanitarian Support Organizations in Arid and Semi-Arid Counties, Kenya



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Abstract

Purpose: Drought humanitarian support organizations play a critical role in enhancing resilience and addressing food insecurity, livestock loss, and water scarcity in Kenya's arid and semi-arid counties. Despite their importance, many organizations face persistent challenges related to coordination, resource allocation, and operational effectiveness, often linked to weaknesses in strategic management practices. This study examined the effect of environmental scanning and strategy formulation on the performance of drought humanitarian support organizations operating in arid and semi-arid counties in Kenya.

Methodology: The study was anchored on Resource Based Theory, Strategic Fit Theory, and Strategic Choice Theory. A descriptive research design was adopted targeting registered drought humanitarian support organizations. Primary data were collected using structured questionnaires administered to organizational leaders. Data were analysed using descriptive statistics and inferential techniques, including correlation and regression analysis, to determine the relationship between environmental scanning, strategy formulation, and organizational performance.

Findings: The findings revealed that environmental scanning and strategy formulation both had a positive and statistically significant effect on organizational performance. Strategy formulation emerged as the strongest predictor of performance, underscoring the importance of clear goal setting, risk assessment, capacity building, and resource mobilization. Effective environmental scanning through climate data analysis, logistics resource assessment, community needs evaluation, and regulatory compliance enhanced organizational responsiveness and decision making. The study concludes that strengthening environmental scanning and strategy formulation significantly improves the effectiveness, efficiency, and sustainability of drought humanitarian interventions.

Unique Contribution to Theory, Practice and Policy: The findings contribute to strategic management and humanitarian operations literature and provide practical insights for policymakers and managers seeking to enhance drought response initiatives aligned with national development priorities and the Sustainable Development Goals.

Keywords: *Environmental Scanning, Strategy Formulation, Organizational Performance, Humanitarian Support Organizations, Arid and Semi-Arid Counties, Kenya*

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INTRODUCTION

Strategic management in volatile and crisis driven environments increasingly requires adaptive rather than linear planning approaches. Adaptive Strategic Management emphasizes continuous learning, environmental sensitivity, flexibility in decision making, and rapid resource reconfiguration in response to uncertainty. Unlike traditional corporate models that assume relative environmental stability, adaptive approaches recognize that organizations operating in disaster prone contexts must constantly scan, interpret, and respond to dynamic risks. In humanitarian settings, particularly those characterized by recurrent drought, strategic management is therefore not a static planning exercise but an iterative process shaped by changing climatic, socio economic, and institutional conditions.

Globally, humanitarian organizations responding to drought operate within environments marked by climate variability, fragile livelihoods, resource constraints, and complex stakeholder expectations. Evidence from Australia, the United States, and India shows that adaptive environmental scanning practices such as climate monitoring, early warning systems, and scenario analysis enhance anticipatory action and reduce reactive crisis response (Chong, White & Turner, 2020; Saha, Bhuiyan & Bandyopadhyay, 2021). Strategy formulation in such contexts involves translating continuously updated environmental information into flexible operational plans that allow timely resource mobilization and coordinated intervention. However, studies indicate that many humanitarian organizations struggle to institutionalize adaptive planning mechanisms, often relying on rigid frameworks that limit responsiveness (Candido & Santos, 2018).

In Kenya, drought remains one of the most persistent development challenges, particularly in arid and semi-arid counties where livelihoods depend largely on rain fed agriculture and pastoralism. The 2020 to 2022 drought, triggered by five consecutive failed rainy seasons, severely affected over twenty two counties and intensified food insecurity, livestock losses, water scarcity, and malnutrition (National Drought Management Authority, 2023). Kenya's drought management architecture is coordinated through the National Drought Management Authority, which oversees early warning systems, drought contingency planning, and resilience building initiatives across ASAL counties. Central to this framework is the Ending Drought Emergencies strategy, which aims to shift drought response from reactive emergency relief toward proactive risk reduction and resilience strengthening.

Under the EDE framework, non-governmental organizations and other humanitarian actors are expected to align their interventions with county drought contingency plans, integrate early warning information into programming, and coordinate closely with government structures. This alignment requires strong adaptive environmental scanning capabilities and flexible strategy formulation processes that can respond to fluctuating drought phases. However, despite the existence of institutional frameworks and early warning data, integration into organizational decision making remains inconsistent. Some organizations continue to rely on periodic planning cycles that are insufficient for the rapidly changing conditions characteristic of ASAL regions.

Weak adaptive strategic management practices have been associated with delayed responses, inefficient resource allocation, and duplication of efforts among humanitarian actors. Moreover, while Kenya has a well established drought governance framework, empirical studies examining

how environmental scanning and strategy formulation influence the operational performance of drought humanitarian support organizations remain limited. There is insufficient evidence on whether organizations effectively translate NDMA early warning signals and EDE strategic guidelines into adaptive operational strategies that enhance performance outcomes.

Against this backdrop, this study examines how environmental scanning and strategy formulation influence the performance of drought humanitarian support organizations operating in arid and semi arid counties in Kenya. By situating the analysis within Kenya's drought governance architecture and adaptive strategic management perspective, the study contributes to understanding how humanitarian organizations can enhance responsiveness, improve coordination, and strengthen resilience oriented interventions in highly volatile drought prone contexts.

Problem Statement

Kenya's arid and semi arid counties experience recurrent droughts that continue to undermine food security, livelihoods, and public health. Drought humanitarian support organizations play a critical role in responding to these crises; however, their operational performance is often constrained by weaknesses in strategic management practices. In particular, inadequate environmental scanning and weak strategy formulation have led to delayed responses, inefficient resource utilization, and limited adaptability to changing climatic and community conditions. Although climate data, early warning systems, and community needs assessments are widely available, many organizations struggle to systematically integrate this information into strategic planning and decision making. Despite the acknowledged importance of strategic management in enhancing organizational effectiveness, there is limited empirical evidence linking environmental scanning and strategy formulation to the performance of drought humanitarian support organizations in Kenya. This gap has hindered the development of evidence-based strategies to improve coordination, accountability, and service delivery. This study therefore seeks to examine how environmental scanning and strategy formulation influence the performance of drought humanitarian support organizations in Kenya's arid and semi arid regions.

Objectives, Purpose and Significance of the Study

This study is justified by the need to enhance the performance of drought humanitarian support organizations operating in Kenya's arid and semi-arid counties, where recurrent droughts continue to threaten food security, livelihoods, and socioeconomic stability. By focusing specifically on environmental scanning and strategy formulation, the study provides empirical evidence on how timely analysis of climate data, community needs, and regulatory conditions, together with effective goal setting, risk assessment, and resource mobilization, influence organizational performance. The findings are expected to inform evidence-based decision making among humanitarian managers and policymakers, leading to improved planning, coordination, and responsiveness in drought interventions. The study also contributes to national and regional drought resilience efforts by supporting climate change adaptation strategies aligned with Africa's Agenda 2063. Further, it complements Kenya's Sustainable Development Goals and the Bottom Up Economic Transformation Agenda by promoting efficient, accountable, and sustainable humanitarian operations. Academically, the study enriches existing literature and provides a foundation for future research on strategic management practices in humanitarian contexts.

LITERATURE REVIEW

Resource Based Theory

Resource Based Theory, originally advanced by Wernerfelt (1984) and refined by Barney (2019), posits that organizational performance is primarily determined by internal resources and capabilities that are valuable, rare, difficult to imitate, and non-substitutable. While early applications of the theory emphasized tangible assets, contemporary scholarship increasingly highlights the strategic importance of intangible resources, particularly in knowledge intensive and uncertainty driven environments.

In drought humanitarian support organizations, intangible capabilities are more critical than physical assets. These include data analytics capabilities, indigenous knowledge networks, institutional memory, donor relationships, coordination routines, leadership competencies, and organizational learning systems. For example, the ability to interpret climate data, integrate early warning signals, and translate them into operational plans depends on analytical capacity rather than physical infrastructure. Similarly, strong relationships with donors and development partners enable rapid resource mobilization during drought escalation phases. Indigenous community networks provide localized knowledge regarding pasture conditions, water sources, migration patterns, and vulnerability hotspots, which enhances the accuracy of environmental scanning.

These intangible resources are socially complex and path dependent, making them difficult for competing organizations to replicate. A humanitarian organization with advanced data interpretation systems, trust based community relationships, and long standing donor credibility is better positioned to anticipate drought risks and implement adaptive strategies. Resource Based Theory therefore explains how differences in intangible capabilities influence the effectiveness of environmental scanning and strategy formulation, ultimately affecting operational performance in arid and semi arid counties.

In highly volatile drought contexts, physical resources such as vehicles or warehouses may be temporarily useful, but it is the organization's cognitive, relational, and analytical capabilities that sustain long term performance. By focusing on intangible strategic assets, this study applies Resource Based Theory to explain why some drought humanitarian support organizations demonstrate superior responsiveness, coordination, and resilience compared to others.

Strategic Fit Theory

Strategic Fit Theory, as articulated by Vickery, Droge, and Markland (1993), argues that organizational performance improves when internal capabilities are aligned with external environmental conditions. However, the concept of fit is deeply rooted in Contingency Theory, which posits that there is no single best way to organize or manage; instead, optimal strategies depend on contextual factors such as environmental uncertainty, complexity, and volatility. Contingency Theory emphasizes that organizational structures, decision processes, and strategic choices must vary according to situational demands. In the context of drought humanitarian support organizations, this perspective is particularly relevant. Drought severity fluctuates across time and space, progressing through normal, alert, alarm, and emergency phases. Each phase

requires different strategic responses, ranging from resilience building and early mitigation to emergency relief and recovery interventions.

Environmental scanning provides the diagnostic input that informs this contingency based alignment. When drought indicators signal mild stress, strategies may prioritize capacity building, water infrastructure maintenance, and livelihood diversification. Conversely, when early warning systems indicate acute food insecurity or livestock mortality, organizations must rapidly shift toward emergency food distribution, water trucking, and medical outreach. Therefore, strategy formulation cannot follow a rigid template; it must adapt to the severity and nature of environmental signals.

Strategic Fit in this study is thus conceptualized through a contingency lens. The effectiveness of strategy formulation depends on how well it matches the conditions identified through environmental scanning. Misalignment, such as applying long term development strategies during acute crisis phases, may reduce operational effectiveness. Conversely, excessive emergency response during low risk phases may lead to inefficient resource utilization. By integrating Strategic Fit with Contingency Theory, this study argues that the performance of drought humanitarian support organizations depends not only on possessing internal capabilities, but also on their ability to align those capabilities with evolving environmental conditions. There is no universally optimal drought management strategy; rather, performance improves when strategic choices are contingent upon accurate environmental assessment and contextual realities in arid and semi arid counties.

Empirical Review

Environmental scanning has been widely recognized as a critical determinant of organizational performance, as it enables organizations to anticipate environmental changes, identify risks and opportunities, and make informed strategic decisions. Empirical studies conducted in Kenya and South Africa demonstrate that systematic environmental scanning practices, including SWOT analysis, PEST analysis, and scenario planning, significantly enhance decision making, resource utilization, and organizational responsiveness (Kaburu, 2018; Omondi & Wambua, 2020; Rintari & Makori, 2020). Okwemba and Njuguna (2021) further established that continuous monitoring of internal and external environments enables organizations to reduce uncertainty and align their operations with prevailing conditions. In the context of drought humanitarian support organizations, environmental scanning involves the use of climate data, assessment of logistics and resource availability, community needs analysis, and compliance with legal and regulatory frameworks to facilitate timely and targeted interventions in drought affected areas.

Strategy formulation has also been empirically linked to improved organizational performance through its role in setting clear objectives, assessing risks, mobilizing resources, and building organizational capacity. Studies conducted in Kenya and Nigeria indicate that organizations with well defined strategy formulation processes achieve higher levels of coordination, accountability, and operational efficiency (Nnamani, Ejim & Ozobu, 2020; Ibrahim, 2021; Maina, Munga & Njeru, 2020). Effective strategy formulation enables organizations to translate insights from environmental scanning into actionable plans that address contextual challenges. For drought humanitarian support organizations, this ensures that interventions are aligned with identified

needs, available resources, and institutional capacities, ultimately improving the effectiveness and sustainability of humanitarian responses.

Conceptual Framework

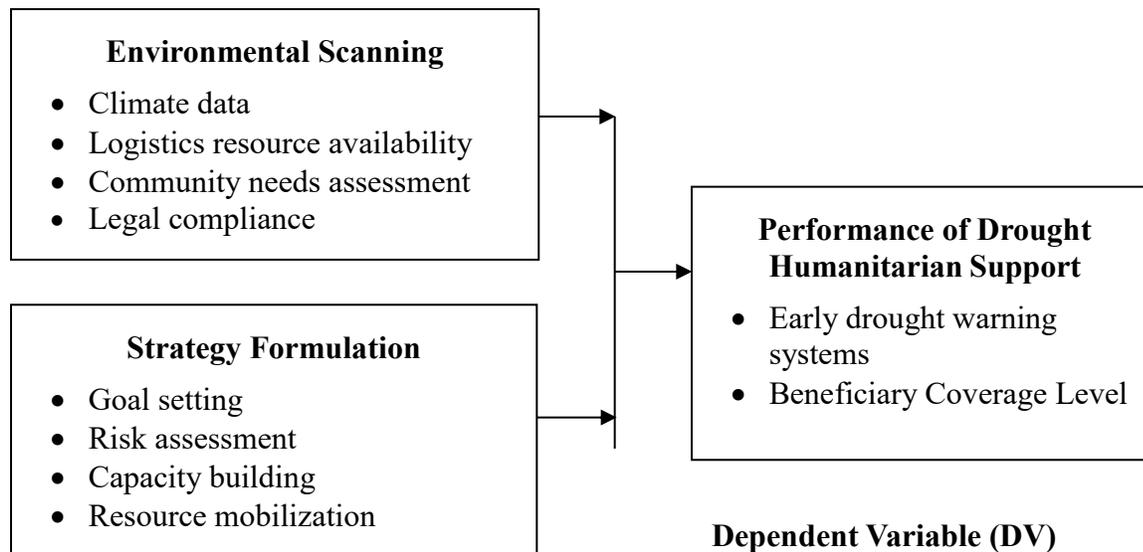


Figure 1: Conceptual Framework

Research Gaps

Although strategic management has been widely examined in both private and non profit sectors, important gaps remain in understanding how these practices function within drought humanitarian support organizations operating in Kenya’s arid and semi arid counties. Much of the existing literature evaluates strategic management in relatively stable corporate or institutional environments, where planning assumptions include predictable infrastructure, reliable logistics systems, and secure operational conditions. These assumptions do not adequately reflect the realities of drought prone ASAL counties.

One significant gap relates to the humanitarian concept of Early Warning, Early Action, commonly referred to as EWEA. In drought response systems, early warning mechanisms generate climate forecasts, vegetation indices, food security alerts, and vulnerability assessments. However, global and regional studies have identified a persistent information–action gap, where early warning data are available but not translated into timely operational decisions. Research on EWEA highlights that delays in converting environmental signals into strategic response often result in escalated humanitarian crises, increased costs, and preventable livelihood losses. While early warning systems are increasingly institutionalized, empirical research examining how organizations integrate this information into adaptive strategy formulation remains limited, particularly within Kenya’s ASAL counties.

Furthermore, ASAL counties are characterized by what development scholars describe as institutional thinness. This includes weak infrastructure, limited transportation networks, insecurity in some regions, sparse government presence, fragile markets, and constrained service delivery systems. Such conditions significantly complicate strategic planning and execution. Most traditional strategic management models assume a relatively stable operational environment where resources, coordination mechanisms, and institutional support structures are readily accessible. In contrast, drought humanitarian organizations in ASAL contexts operate in volatile, resource constrained, and geographically dispersed environments where rapid adaptation is essential.

Existing studies such as Mohamed (2020) and Okwemba and Njuguna (2021) demonstrate that strategic management practices enhance organizational performance, but they are largely grounded in either non humanitarian settings or comparatively stable institutional contexts. Similarly, research on strategy formulation in corporate environments cannot be fully generalized to drought humanitarian support organizations facing fluctuating crisis phases, donor dependency, and infrastructural limitations. There is limited empirical evidence examining whether environmental scanning mechanisms, particularly early warning systems, are effectively translated into context responsive strategies within institutionally thin and high risk ASAL environments.

Therefore, a clear gap exists in understanding how environmental scanning and strategy formulation interact under conditions of institutional fragility and environmental volatility to influence operational performance. This study addresses that gap by examining how drought humanitarian support organizations in Kenya's arid and semi arid counties convert environmental information into strategic action, and whether this alignment improves effectiveness, coordination, and responsiveness in drought interventions.

METHODOLOGY

Design and Instrumentation and Data Collection

This study adopted a descriptive research design to examine the effects of environmental scanning and strategy formulation on the performance of drought humanitarian support organizations in Kenya's Arid and Semi-Arid Lands (ASALs). The target population comprised 72 humanitarian organizations actively engaged in drought relief, including the National Drought Management Authority (NDMA), with organizational heads serving as respondents due to their oversight of strategy development. Data were collected using a structured questionnaire employing a 5-point Likert scale, covering respondents' demographics, environmental scanning practices, strategy formulation processes, and indicators of organizational performance. Ethical procedures were strictly observed, including voluntary participation, informed consent, and approval from Dedan Kimathi University of Technology and NACOSTI. Questionnaires were distributed via organizational leaders, with follow-ups conducted by phone and email to ensure completeness. The descriptive design facilitated identification of patterns and relationships between strategic management practices and organizational performance, providing actionable insights to improve planning, coordination, and drought relief effectiveness.

Stability and Validity of Instrumentation of Data Collection Tool

To ensure the validity and reliability of the questionnaire, a pilot study was conducted with eight respondents, representing approximately 10% of the target population. Participants were drawn from relevant humanitarian organizations, including Christian Aid, Care International, and HIAS Kenya, and provided feedback on the clarity, relevance, and appropriateness of the items. The instrument was refined based on this feedback to improve comprehension and alignment with the study objectives. Validity was established through face and content validity, verified by expert review, ensuring the questionnaire adequately covered environmental scanning, strategy formulation, and organizational performance in drought response. Reliability was assessed using Cronbach's Alpha, with a threshold of 0.7, confirming internal consistency and demonstrating that the instrument could consistently capture accurate and dependable data for the main study.

FINDINGS AND DISCUSSION

Response Rate

A total of 73 questionnaires were distributed to the targeted respondents, of which 60 were fully completed and deemed usable, while 13 were incomplete and excluded from the analysis. This produced a response rate of 82.2%, reflecting strong engagement from participants. The high response rate enhances the reliability and representativeness of the data, providing a solid basis for subsequent statistical analyses. It ensures that the findings accurately capture the perspectives of organizational heads regarding environmental scanning and strategy formulation practices in drought humanitarian support organizations operating in Kenya's arid and semi-arid counties.

Test of Regression Assumptions

Normality Test for Operational Performance

The Table 2 below shows a Q-Q test was performed to assess the normality of the operational performance data. The Normal Q-Q Plot reveals that the data points closely align with the reference line, indicating that the operational performance variable is approximately normally distributed. This suggests that the assumption of normality is satisfied for the regression analysis. For data that are normally distributed, the data points are close to the diagonal line (Scott et al, 2011).

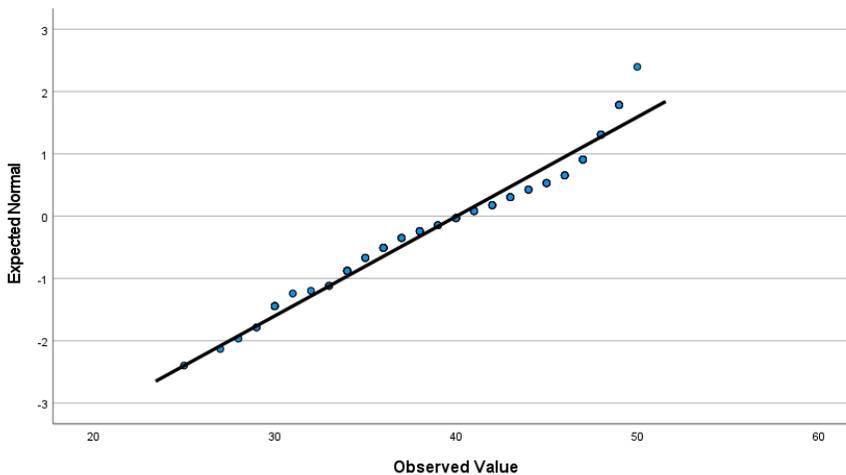


Figure 2: Normal Q-Q Plot for Operational Performance

Test of Linearity

The correlation results in this study reveal the relationships between various strategic management processes and operational performance. Table 1 below shows the correlation test results.

Table 1: Correlation Test Results for the Effect of Environmental Scanning and Strategy Formulation on the Performance of Drought Humanitarian Support Organizations in Arid and Semi-Arid Counties, Kenya

Correlations		Environmental Scanning	Strategy Formulation	Operational Performance
Environmental Scanning	Pearson Correlation	1		
	Sig. (2-tailed)	—		
Strategy Formulation	Pearson Correlation	0.463**	1	
	Sig. (2-tailed)	0.000	—	
Operational Performance	Pearson Correlation	0.460**	0.540**	1
	Sig. (2-tailed)	0.000	0.000	—

The results indicate that both Environmental Scanning and Strategy Formulation positively and significantly influence operational performance. Environmental Scanning is significantly correlated with performance ($r = 0.460$, $p < 0.01$), suggesting that organizations that systematically monitor drought conditions, assess climate data, and comply with legal and regulatory frameworks achieve better operational outcomes. Strategy Formulation demonstrates the strongest positive correlation ($r = 0.540$, $p < 0.01$), highlighting the importance of clear goal setting, risk assessment, and effective resource mobilization in enhancing organizational performance. Overall, these findings confirm that focusing on Environmental Scanning and Strategy Formulation is crucial for

improving the efficiency, coordination, and effectiveness of drought humanitarian interventions in Kenya’s arid and semi-arid counties.

Test of Independence

Table 2 below shows the Durbin-Watson test results.

Table 2: Durbin-Watson Test Results

Variables	Durbin–Watson Statistic
Environmental Scanning	1.542
Strategy Formulation	1.348

The Durbin–Watson statistics for the regression models ranged from 1.348 to 1.542, indicating minimal autocorrelation among residuals and confirming that the assumption of independent errors was largely satisfied. While the values for Environmental Scanning (1.542) and Strategy Formulation (1.348) were slightly below the ideal lower limit of 1.5, they remain reasonably acceptable, suggesting that any violation of error independence was not substantial. Overall, these results support the reliability of the regression models and indicate that the parameter estimates can be considered robust, ensuring that the analysis of the effect of strategic management practices on operational performance is credible and dependable.

Homoscedasticity Test

A normal P-P A normal P-P plot of the regression standardized residuals was used to test for homoscedasticity, which checks if the variance of errors is constant across all levels of the independent variables. Figure 3 below shows the normal P-P plot results.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Operational Performance

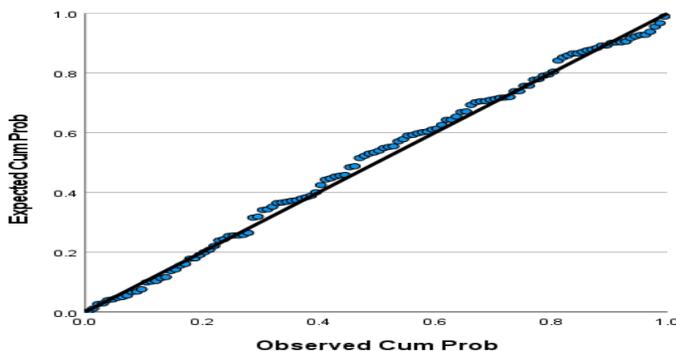


Figure 3: Normal P-P Plot Results

In the plot, the standardized residuals are plotted against the expected cumulative probabilities, with the points closely aligning along the reference diagonal line. This alignment indicates that the residuals are approximately normally distributed, supporting the assumption of homoscedasticity. The absence of any visible patterns or funnel-shaped spread in the plot further confirms that the residuals have constant variance across all levels of the independent variables. These findings

suggest that there is no evidence of heteroscedasticity, meaning the homoscedasticity assumption is met, and the regression model can be considered reliable for drawing valid inferences.

Inferential Results

The regression analysis presented in Table 3 examines the combined influence of environmental scanning and strategy formulation on the operational performance of drought humanitarian support organizations.

Table 3: Regression Analysis Results for Strategic Management Practices

Strategic Management Practices Components	R	R ²	Sum of Squares	F-value	Beta (β)	t	Std. Error	Sig.
Model Fitness	0.652	0.425						
Regression			1986.146	21.261				0.000
Residual			2685.720					
Total			4671.867					
Constant					19.989	2.475	8.077	0.015
Environmental Scanning					0.238	1.651	0.144	0.019
Strategy Formulation					0.503	3.930	0.128	0.000

The regression results indicate that Environmental Scanning and Strategy Formulation collectively have a strong and statistically significant influence on the operational performance of drought humanitarian support organizations. The model shows an R value of 0.652, reflecting a strong positive correlation, and an R² of 0.425, meaning that 42.5% of the variance in operational performance is explained by these two strategic management practices. The ANOVA results (F = 21.261, p = 0.000) confirm that the model is statistically significant. Individually, Strategy Formulation is the most influential factor (β = 0.503, t = 3.930, p = 0.000), followed by Environmental Scanning (β = 0.238, t = 1.651, p = 0.019). Both practices positively and significantly impact operational performance, demonstrating that organizations with clear goals, risk assessment strategies, resource mobilization, and proactive environmental monitoring achieve better outcomes in drought response.

The regression equation:

$$Y = 19.989 + 0.238X_1 + 0.503X_2$$

Indicates that even without these practices, organizations maintain a baseline level of performance. However, strengthening Environmental Scanning and Strategy Formulation significantly improves operational effectiveness, highlighting their crucial role in enhancing the efficiency, coordination, and responsiveness of humanitarian interventions in Kenya's arid and semi-arid counties.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study concludes that environmental scanning and strategy formulation have a significant positive influence on the operational performance of drought humanitarian support organizations in Kenya's arid and semi-arid counties. Among the two, strategy formulation emerged as the strongest contributor to improved performance. Organizations that systematically monitor environmental conditions, assess climate data, and align operations with legal and regulatory frameworks, while simultaneously developing clear goals, conducting risk assessments, and mobilizing resources effectively, demonstrate higher efficiency, accountability, and resilience in delivering drought relief interventions. The findings highlight that a focused application of these strategic management practices is crucial for enhancing operational performance and ensuring timely, effective, and well-coordinated humanitarian responses in drought-affected regions.

Recommendations

Based on the study findings, it is recommended that policymakers and organizational leaders prioritize environmental scanning and strategy formulation as key drivers of operational performance in drought humanitarian support organizations. Policymakers should develop frameworks that support the collection and analysis of climate data, community needs assessments, resource availability, and compliance with legal and regulatory requirements. Humanitarian organizations should ensure that insights from environmental scanning directly inform the formulation of clear, realistic, and context-specific strategies, including goal setting, risk assessment, and resource mobilization. Practical measures include training staff in data interpretation and strategic planning, improving coordination among teams, and investing in tools that support evidence-based decision making. Institutionalizing these practices will enhance efficiency, responsiveness, accountability, and the sustainability of drought relief interventions in arid and semi-arid counties.

Limitations of the Current Study

This study focused specifically on environmental scanning and strategy formulation within humanitarian organizations operating in Kenya's arid and semi-arid counties, which may limit the generalizability of the findings to other regions, sectors, or organizational contexts. Data were collected only from organizational leaders, potentially overlooking insights from other staff involved in day-to-day operational activities. Additionally, the study did not examine other factors that may influence organizational performance, such as technology adoption, leadership styles, or collaboration with other agencies. Future research could expand to include these dimensions, incorporate multiple staff perspectives, and explore additional strategic management practices to provide a more comprehensive understanding of factors that enhance operational performance in drought humanitarian support organizations.

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