Organisational Effectiveness in Resource-Constrained Public Safety Institutions: A Diagnostic Analysis Using Weisbord's Six-Box Model in Ghana National Fire Service

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ABSTRACT

This study evaluated organisational effectiveness within the Ghana National Fire Service (GNFS) in Sagnarigu Municipality in the Northern Region, addressing a research gap in which technical capabilities often overshadow organisational factors in the fire service literature. Employing Weisbord's Six-Box diagnostic model within a participatory action research framework, the study implemented targeted interventions to enhance organisational effectiveness. A mixed-methods approach was employed to collect data from 50 GNFS personnel using an organisational capacity assessment tool, supplemented by focus groups, interviews, observations, and document analysis. The interventions were collaboratively designed and implemented over a three-month period. The findings revealed varying degrees of effectiveness across organisational dimensions. Purpose (1.3) and structure (1.5) emerged as strengths, characterised by a clear understanding of the mission and well-defined reporting relationships. However, rewards (3.5), helpful mechanisms (3.2), and leadership (2.7) present significant challenges, particularly in terms of resource adequacy and recognition systems. Following the interventions, measurable improvements were observed: rewards improved to 2.8, helpful mechanisms improved to 2.6, and leadership improved to 2.2. The qualitative data indicated enhanced transparency, improved resource utilisation, and increased staff consultation in decision-making. This research demonstrates that internal organisational factors significantly impact the effectiveness of fire services in fulfilling public safety mandates. The participatory approach facilitated both accurate diagnosis and committed improvement actions despite resource constraints. These findings have important implications for fire service policies and management in developing countries, where optimising organisational effectiveness is crucial for delivering critical services with limited resources. Future research should explore the relationship between organisational effectiveness and operational performance across multiple stations.

Keywords: Organisational effectiveness, Ghana National Fire Service, Weisbord's Six-Box Model, Public Safety Institutions.

INTRODUCTION

Fire safety is a critical component of public security systems worldwide. Fires lead to significant loss of life, property damage, and economic disruption. In 2022, fire incidents resulted in over 180,000 fatalities globally, and economic losses exceeding $50 billion (World Fire Statistics Centre, 2023). The effectiveness of fire services directly influences the extent of these losses, making their organisational performance a matter of public concern. Public-sector institutions, particularly security services, play a vital role in ensuring the safety and well-being of citizens. The citizenry of a country expects fire services to operate reliably and efficiently under extreme pressure, often with limited resources, especially in developing countries (Oyedele, 2021).

Fire services in Africa face unique challenges, including limited resources, inadequate equipment, insufficient training, and organisational inefficiencies that hinder effective service delivery (Nkrumah et al., 2021). According to the African Fire and Rescue Service Association (2022), fire-related fatalities in Sub-Saharan Africa are nearly twice the global average, highlighting significant service deficiencies. Many African countries struggle to establish robust institutional frameworks for fire services, often resulting in suboptimal emergency response performance (Adedeji et al., 2020). These challenges reflect broader public service issues, where resource limitations intersect with organisational development needs.

The Ghana National Fire Service (GNFS) is primarily tasked with implementing safety protocols and ensuring compliance across domestic, occupational, and societal domains. Established under Act 537 in 1997, GNFS functions as Ghana's principal agency for fire response and prevention (Boateng, 2021). Recent critiques have highlighted concerns about their operational effectiveness (Amoako et al., 2022). GNFS faces challenges such as inadequate equipment, a limited workforce, organisational inefficiencies, and resource constraints (Manu et al., 2021). These issues are particularly pronounced at regional stations outside major urban centres where resources are limited.

Organisational effectiveness is crucial for an institution's ability to achieve its mission and objectives (Gigliotti et al., 2023). Akpan and Amran (2023) highlight that organisations face increased volatility and uncertainty, necessitating adaptability, innovation, and competitiveness to remain viable. This is particularly relevant for public safety organisations, such as fire services, which must address complex challenges while maintaining high reliability. The effectiveness of these organisations influences public safety outcomes, leading to their assessment and enhancement of critical public policy priorities.

Despite the critical importance of fire services, there is a notable lack of research on organisational effectiveness within GNFS, particularly in regional and municipal contexts. Previous studies examined technical capabilities (Opoku, 2021), resource allocation (Mensah & Antwi, 2022), and public perceptions (Doku, 2021). However, only a few studies have conducted comprehensive organisational assessments using established diagnostic models. This research gap is significant given the essential role of GNFS in public safety and the unique challenges faced by municipal fire stations outside Ghana's major urban centres. Analysing organisational effectiveness using structured diagnostic methodologies offers valuable insights for improvement and reform.

This study aims to address this gap by evaluating the organisational effectiveness and performance of the GNFS within Sagnarigu Municipal in the Northern Region of Ghana. Using Weisbord's six-box diagnostic model as a framework, this study evaluated the current state of the organisation and identified potential areas for intervention. The study aims to:

1. assist the client organisation in identifying gaps that impede its effectiveness.
2. provide OD intervention tools to address identified gaps through a comprehensive action plan.
3. evaluate the impact of implemented interventions on organisational performance.
4. develop recommendations for policy and practice enhancing fire service effectiveness.

The rest of this paper is organised as follows: Section two offers a comprehensive review of the relevant literature on organisational effectiveness, organisational development, action research, and the Weisbord Six-Box Model. Section three details the research methodology, including research design, data collection methods, sampling techniques, and analytical approaches. Section four presents our findings and discusses their implications. Section five concludes the study with recommendations for practice, policy, and future research.

This study contributes to both a theoretical and practical understanding by applying the principles of organisational development to a critical public safety institution in Ghana. Through rigorous diagnostic processes and targeted interventions, this research demonstrates how participatory approaches can enhance organisational effectiveness in resource-constrained settings while also providing insights for improving fire services.

LITERATURE REVIEW

The Concept of Organisational Effectiveness

Organisational effectiveness remains a debated concept in management literature, lacking a universally accepted definition. Recent theoretical advancements have transcended traditional goal-based approaches by incorporating systems, strategic constituencies, and competing value perspectives, thereby reflecting the complexity of contemporary organisations. Public sector organisations encounter unique challenges in achieving effectiveness compared with their private counterparts. They must manage multiple stakeholders, complex missions, and ambiguous success metrics. This requirement is particularly pertinent for public safety organisations such as fire services, which operate in high-stakes environments where effectiveness has direct implications for life safety outcomes.

The current evaluation methodologies can be categorised into four primary approaches: goal attainment, resource acquisition, internal processes, and stakeholder satisfaction. Nevertheless, these methods exhibit limitations when applied to public safety organisations. Goal attainment models often fail to adequately address the complex objectives inherent in public services, while assessing internal processes in high-risk environments poses significant methodological challenges. The literature identifies considerable gaps in the understanding organisational effectiveness within African public safety institutions. Models originating from Western contexts frequently neglect the distinctive resource constraints, cultural dimensions, and institutional arrangements that are characteristic of developing nations. Research on Ghanaian fire services predominantly focuses on operational capabilities rather than organisational factors, thereby creating a critical knowledge gap.

Recently, academic discourse has increasingly acknowledged the necessity of context-specific methodologies for assessing organisational effectiveness. Models must adapt to local conditions and consider environmental contingencies, particularly those related to fire services in Ghana's municipal settings.

Overview of Organisational Development

Organisational development (OD) has transitioned from a traditional emphasis on planned change to more intricate, system-orientated methodologies. It is currently defined as the application of behavioural science to enhance organisational strategies, structures, and processes (Nasurdin et al., 2022). The field incorporates various theories, including complexity theory, systems thinking, and positive psychology, which augment adaptability across diverse contexts (Mohamad et al., 2023). However, this theoretical expansion presents challenges for the practical application of OD principles. A central debate in OD concerns universalist versus contextualist approaches. While some scholars advocate for standardised OD models (Wang & Rafikul, 2020), others emphasise the necessity for cultural adaptation, particularly within African contexts (Mukherjee & Prasad, 2021). There is limited research on OD applications in emergency services, particularly within fire departments in developing countries, where resource constraints present unique challenges (Demir, 2022). Recent trends in OD underscore participatory approaches, wherein employee involvement enhances the success of interventions (Nasurdin et al., 2022). These insights inform the focus of this study on OD in GNFS.

The Concept of Action Research

Action research (AR) is a methodological approach that concurrently generates knowledge and facilitates practical changes. In contrast to traditional research paradigms, AR involves collaboration between researchers and organisational members to address real-world challenges (Brown & Clark, 2021). Its theoretical foundation is evolving, with scholars emphasising its participatory and emancipatory nature, thereby positioning it as an alternative to positivist traditions (Coghlan & Brydon-Miller, 2023). This challenges the conventional notion of researcher objectivity, suggesting that knowledge emerges through engagement rather than detached observation. AR encounters methodological debates concerning its validity, generalisability, and rigour. Scholars note tensions between AR's practical orientation and academic standards, as researchers must balance methodological rigour with real-world constraints (Schermuly & Graßmann, 2023). In developing countries, AR is underused, particularly in public safety organisations, where hierarchical structures may impede participatory approaches (Nkrumah et al., 2021). However, recent research indicates that AR effectively bridges theory and practice, refining organisational theories while generating practical knowledge (Schermuly & Graßmann, 2023). This study applies AR within the Ghanaian fire service to address this research gap and to enhance organisational effectiveness.

Action Research in Organisational Development

The integration of Action Research (AR) with OD enhances both theoretical comprehension and practical intervention. Scholars emphasise AR's capacity to fortify OD initiatives by promoting participation, refining intervention designs, and revealing implicit organisational knowledge (Brown & Clark, 2021; Coghlan & Brydon-Miller, 2023). These attributes render AR particularly valuable in complex environments in which stakeholder engagement is essential.

Despite its advantages, AR in OD encounters significant challenges, particularly within hierarchical entities, such as fire services. Obstacles, such as time constraints, power imbalances, and resistance to participation, can impede its efficacy (Hammersley, 2022; Oyedele, 2021). Furthermore, AR remains underexplored in African OD contexts, where cultural and institutional factors necessitate adaptation (Nkrumah et al., 2021). Recent innovations have suggested modified AR methodologies that uphold participatory principles while accommodating organisational constraints (Schermuly & Graßmann, 2023). This study implements adaptive models within the Ghana National Fire Service (GNFS) to enhance organisational effectiveness in the public safety context.

Organisational Capacity Assessment (OCA)
Organisational capacity assessment (OCA) is a systematic approach for evaluating an organisation's strengths and weaknesses to inform improvement initiatives. Various models are available, ranging from externally driven assessments that emphasise objectivity to internally focused approaches that foster organisational commitment but may compromise impartiality (Onguko & Ragui, 2021). Furthermore, ongoing debates exist between comprehensive assessments that capture complexity and focused models that offer in-depth insights into specific areas (Jilke et al., 2021).

The application of OCA within public safety organisations, particularly fire services, remains inadequately explored, especially in African contexts where resource limitations necessitate tailored approaches (Zaitul et al., 2023). Recent methodological advancements, such as participatory and mixed-method assessments, have improved both the accuracy and commitment to organisational enhancement (Ali, 2021). The integration of OCA with action research represents an emerging trend that bolsters both diagnostic and interventional processes (Onguko & Ragui, 2021). This study employs a participatory OCA approach in the GNFS to augment organisational effectiveness.

The Concept of Weisbord's Six-Box Model
Weisbord's Six-Box Model is a widely used diagnostic framework that evaluates organisations through six dimensions: purpose, structure, relationships, leadership, rewards, and helpful mechanisms (Weisbord, 1978). Leadership functions as the central coordinating element, while the model acknowledges external environmental influences through input-output processes. Its extensive applicability across corporate and public institutions underscores its practical significance (Cham & Oyewobi, 2022; Kwofie et al., 2022).

Despite its strengths, critics of the model emphasise its limited focus on external environments, power dynamics, and technological advancements (Cham & Oyewobi, 2022; Kwofie et al., 2022). The application of the model public safety organisations, particularly fire services in developing countries, remains underexplored. Recent adaptations have addressed these limitations by incorporating external and technological factors (Kwofie et al., 2022). This study applies Weisbord's model within GNFS, considering necessary modifications to enhance its effectiveness in this context.
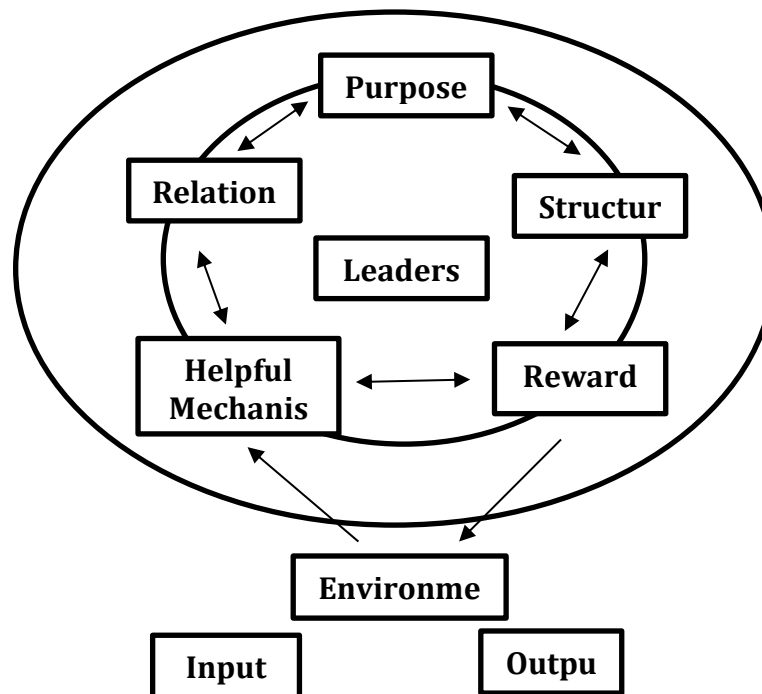
Figure 1: Six-Box Model, Weisbord, (1978)

Integration with participatory assessment approaches represents an emerging trend that enhances diagnostic accuracy while building organisational capacity for improvement. This integrated approach aligns with participatory action research methodologies, which simultaneously diagnose organisational issues and initiate improvement processes, as implemented in the current study of GNFS.

Organisational Effectiveness in Fire Services
Despite their essential role in public safety, fire services have been relatively understudied in the context of organisational effectiveness research. These entities are required to maintain operational readiness, manage high-risk situations, and balance emergency responses with preventive measures, thereby facing unique organisational challenges (Manu et al., 2021; Oyedele, 2021). Nevertheless, most existing studies emphasise technical response capabilities rather than organisational factors that affect performance (Opoku, 2021).

In developing countries, challenges such as resource constraints, hierarchical decision-making processes, and limited professional development opportunities significantly impact the effectiveness of fire services (Amoako et al., 2021; Amoako et al., 2022). Research on Ghanaian fire services is fragmented, with studies on resource allocation and technical capacity often neglecting organisational structures and leadership dynamics (Mensah & Antwi, 2022). Given these gaps, OD interventions for fire services remain underexplored. This study aimed to assess and enhance the organisational effectiveness of GNFS by applying the OD principles and evaluating intervention outcomes.

Synthesis and Research Gap
This literature review, encompassing multiple domains, identifies several significant research gaps that this study aims to address. First, although organisational effectiveness has been

extensively examined in various contexts, its application to fire services in developing countries remains underexplored. Existing research on fire services has predominantly focused on technical capabilities rather than organisational dimensions, thereby creating a critical knowledge gap regarding the influence of organisational factors on service delivery (Opoku, 2021; Manu et al., 2021). Second, although action research and organisational development approaches have demonstrated value in various settings, their application within hierarchical public safety organisations, such as fire services, remains inadequately explored, particularly in African contexts (Nkrumah et al., 2021).

Third, while diagnostic models like Weisbord's Six-Box framework are well-known in general management, they haven't been widely used in fire services, which brings concerns about how well they work and if they need to be changed for this field (Kwofie et al., 2022).

The primary concern of this study is the evaluation and enhancement of organisational effectiveness within Ghanaian fire services, with a particular emphasis on GNFS in municipal settings. While individual studies have provided partial insights into this matter, there has been a notable absence of comprehensive research investigating organisational effectiveness in GNFS using established diagnostic frameworks and participatory improvement methodologies. This study aims to address this gap by utilising Weisbord's six-box model within an action research framework to assess and enhance organisational effectiveness in the GNFS Sagnarigu municipality.

The theoretical framework supporting this study synthesises elements from diverse literature streams. Drawing from the literature on organisational effectiveness, this study adopts a multidimensional perspective that includes goal attainment, resource utilisation, internal processes, and stakeholder perspectives (Gigliotti et al., 2023). The literature on organisational development incorporates the principles of planned change and system thinking (Nasurdin et al., 2022). The framework also integrates collaborative and participatory methods from the action research literature, engaging organisational members in both diagnosis and intervention (Coghlan & Brydon-Miller, 2023). Additionally, it employs Weisbord's model, utilising a structured diagnostic framework that examines six critical organisational dimensions: purpose, structure, relationships, rewards, leadership, and helpful mechanisms (Kwofie et al., 2022).

This integrated framework informs both the study's methodological approach and interpretation of its findings. By applying this framework to the GNFS Sagnarigu Municipal, this study generates insights that contribute to multiple streams of literature while addressing the practical challenges faced by fire services in Ghana. The findings not only enhance our understanding of organisational effectiveness in public safety institutions but also demonstrate how participatory diagnostics and intervention approaches can be effectively implemented within hierarchical organisational settings.

METHODOLOGY
Research Design and Approach
This study employed a mixed-method design within a participatory action research (PAR) framework. The integration of quantitative and qualitative methodologies facilitated methodological triangulation, thereby enhancing both the validity and comprehensiveness of

the findings concerning organisational effectiveness at GNFS Sagnarigu Municipality (Creswell & Creswell, 2022). The cross-sectional survey component enabled the systematic collection of standardised data across organisational dimensions. In contrast, qualitative methods revealed contextual depth and nuanced organisational dynamics that were inaccessible through survey instrumentation alone (Brown & Clark, 2021).

The PAR methodology was selected for its dual capacity to generate scholarly knowledge while concurrently facilitating organisational transformation, a critical consideration given the study's commitment to both theoretical and practical improvement (Coghlan & Brydon-Miller, 2023). This approach engages organisational members as co-researchers rather than merely subjects, thereby engendering genuine involvement throughout the diagnostic and intervention phases. As Hammersley (2022) argues, this collaborative orientation not only enhances the ecological validity of the findings but also ensures the sustainability of subsequent interventions through increased stakeholder commitment.

In terms of epistemology, this study integrated pragmatism and critical realism to establish a comprehensive philosophical framework. This integration was both intentional and theoretically substantiated. Pragmatism's focus on practical outcomes and actionable knowledge (Morgan, 2014) was consistent with the study's intervention-oriented approach, while critical realism's stratified ontology enabled the exploration of the underlying causal mechanisms within organisational structures (Fletcher, 2017). The pragmatist perspective informed the selection of diverse methodologies based on their effectiveness in addressing research objectives rather than adherence to paradigmatic orthodoxy. Concurrently, critical realism's distinction between the empirical, actual, and real domains (Bhaskar, 2008) offers analytical depth in investigating how observable organisational phenomena arise from deeper structural and cultural mechanisms.

The integration of epistemological perspectives has been particularly advantageous in the organisational context under examination. The pragmatist component facilitates adaptive responses to operational realities and constraints within the hierarchical structure of the fire service environment. Simultaneously, critical realism's reproductive logic enabled the identification of generative mechanisms underlying observable organisational patterns. As Schermuly and Graßmann (2023) argue, this complementary epistemological approach is particularly suitable for organisational interventions, where both practical outcomes and theoretical understanding are equally prioritised objectives.

Population and Sampling
Target Population
The study's target population consisted of all staff members of the GNFS in Sagnarigu Municipal, Northern Region. At the time of the research, the organisation employed approximately 115 individuals across various ranks and functional areas. This population encompasses management staff, senior officers, junior officers, and support staff, thereby reflecting a diverse array of perspectives on organisational functioning.

Sample Size and Sampling Technique
A sample of 50 participants was selected from the target population, which represents approximately 43.5% of the total organisational membership. The determination of sample size

was guided by statistical confidence requirements, resource constraints, and personnel availability considerations. Although larger samples generally offer increased statistical power (Ibrahim & Sidani, 2022), the selected sample size was enough to find important trends in the numbers and allowed for thorough analysis of the qualitative data.

In the quantitative component of the study, simple random sampling was employed to ensure representative inclusion of personnel across various ranks and functional areas. This method afforded all organisational members an equal probability of selection, thereby minimising selection bias and enhancing the generalisability of the findings in a broader organisational context (Setia, 2020). For the qualitative components, purposive sampling was used to ensure the representation of diverse perspectives, particularly from key informants in leadership positions and those with substantial organisational experience.

Participant Recruitment

Participants were recruited through formal organisational channels after receiving approval from the municipal commander. Initial communication regarding the research purpose, methodology, and potential benefits was disseminated through official channels with an emphasis on voluntary participation throughout the recruitment process. Although participant selection occurred during regular working hours, data collection activities were scheduled to minimise disruptions to operational responsibilities, reflecting the essential nature of fire service operations.

Data Collection Methods and Instruments

The study employed a variety of data collection methods to facilitate a comprehensive evaluation of organisational effectiveness and ensure the triangulation of findings. Each method was designed to address specific elements of the research questions, thereby contributing to an overarching framework of participatory action research.

Organisational Capacity Assessment Tool

The principal quantitative instrument employed was a customised organisational capacity assessment tool (OCAT), developed per Weisbord's six-box model. The OCAT comprises 48 items designed to evaluate six dimensions of organisational effectiveness: purpose, structure, relationships, leadership, helpful mechanisms, and rewards. Each dimension included eight items rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The instrument was adapted from validated OCATs used in prior studies (Ali, 2021; Onguko & Ragui, 2021) and modified to suit the specific context of the GNFS. The OCAT was subjected to pilot testing with 10 GNFS personnel who were not part of the final sample to evaluate the clarity, relevance, and completion time. The feedback obtained from this pilot test led to minor revisions in item wording and format prior to full implementation. A reliability analysis using Cronbach's alpha showed that all six dimensions were consistently reliable, with alpha scores between 0.76 and 0.89, which is above the suggested minimum of 0.70 (Ibrahim & Sidani, 2022).

Focus Group Discussions

To complement quantitative data and delve deeper into organisational dynamics, five focus group discussions (FGDs) were conducted, each consisting of 6–8 participants. These FGDs

employed a semi-structured format guided by questions derived from Weisbord's model, which encouraged participants to share their experiences, perceptions, and suggestions concerning each organisational dimension. Separate FGDs were held with management, senior officers, and junior officers to foster comfortable discussion environments and to capture perspectives specific to each rank.

Each FGD was conducted over approximately 90 min, facilitated by the researcher with the support of a trained note-taker. The sessions were audio-recorded with the participant's consent and subsequently transcribed for analytical purposes. The FGD protocol comprises opening questions, transition questions, key questions that address each dimension of Weisbord's model, and concluding questions that solicit additional insights (Krueger & Casey, 2021). Participant validation techniques were employed during discussions to ensure an accurate understanding of their contributions.

Key Informant Interviews
Eight key informant interviews were conducted with selected organisation members who held leadership positions or possessed specialised knowledge of organisational operations. We conducted these semi-structured interviews to delve into the strategic aspects of organisational functioning that surveys or focus groups failed to fully capture. The interview participants included a municipal commander, two deputy commanders, three divisional officers, and two representatives from administrative functions.

Interviews were conducted for durations ranging from 25 to 40 min., adhering to a flexible protocol that facilitated the exploration of emerging themes while ensuring comprehensive coverage of key topics pertinent to organisational effectiveness. The questions addressed aspects of organisational history, strategic direction, operational challenges, resource management, leadership approaches, and opportunities for improvement. All interviews were audio-recorded with participants' consent and transcribed for analysis.

Observation
The direct observation of organisational operations and interactions facilitated a contextual understanding that enhanced the interpretation of other data sources. The researcher conducted structured observations during routine operational activities, staff meetings, and training sessions, meticulously recording field notes using an observation protocol aligned with Weisbord's Six-Box Model. This methodology enables the documentation of both formal and informal organisational dynamics, as well as physical work environments, resource utilisation patterns, and interaction styles that might not be captured through self-reported methods (Kawulich, 2021).

Document Analysis
Organisational documents offer significant historical and contextual insights into the formalised aspects of organisational operations. With the necessary permissions, the researcher examined the strategic plans, operational protocols, training manuals, performance reports, and administrative records. The document analysis used a structured methodology that employed a template based on Weisbord's model to systematically extract relevant information about each organisational dimension (Bowen, 2020). This approach facilitates an understanding of formal organisational structures and processes while allowing for a

comparison between documented procedures and actual practices, as revealed by other data sources.

Data Analysis Procedures

The study used both quantitative and qualitative analytical methods, integrated within the participatory action research framework, to ensure that the findings reflected both the researchers' perspectives and participants' interpretations.

Quantitative Analysis

Quantitative data derived from the OCAT was analysed using Microsoft Excel with the Data Analysis add-in feature to compute descriptive statistics, including means, standard deviations, frequencies, and percentages for each item and dimension. The analysis employed a comparative methodology, with the ideal organisational state denoted as 1.0 on standardised scales. Deviations from this ideal value signified areas requiring intervention, with higher values indicating more substantial organisational challenges. Visual representations, such as bar charts and radar diagrams, were used to illustrate dimensional comparisons and identify priority areas for intervention.

Although advanced statistical tests were considered, the primary objective of the quantitative analysis was to discern patterns and establish priorities rather than to examine causal relationships. This methodology is consistent with the diagnostic emphasis of organisational capacity assessment, where descriptive statistics frequently yield more practical insights than inferential analyses (Onguko & Ragui, 2021). The quantitative findings were shared with organisational members during the feedback sessions, facilitating collaborative interpretation and prioritisation of the intervention areas.

Qualitative Analysis

Qualitative data derived from interviews, focus groups, observations, and document reviews were subjected to thematic analysis according to the procedures outlined by Braun and Clarke (2021). This analytical process encompasses six distinct phases: familiarisation with the data through repeated reading, generation of initial codes, identification of themes, review of themes, definition and naming of themes, and production of the report. The coding process was facilitated by NVivo software, which enabled the systematic organisation of data and the identification of patterns across various sources. The initial coding process employed both deductive and inductive methodologies. A deductive framework informed by Weisbord's Six-Box Model established initial coding categories corresponding to the six organisational dimensions. Concurrently, inductive coding facilitated the identification of emergent themes not encompassed by the predefined framework. This dual approach effectively balances theoretical guidance with receptiveness to unforeseen insights, thereby enhancing the explanatory power of the analysis (Braun & Clarke, 2021).

Throughout the analysis, various techniques were employed to ensure trustworthiness, including peer debriefing, member checking, and negative case analysis. Regular analytical memos have been maintained to document evolving interpretations and methodological decisions, thereby creating an audit trail that enhances analytical transparency (Nowell et al., 2022).

Integrated Analysis

Following the separate analyses of quantitative and qualitative data, an integrated analysis was conducted to compare the findings across these methods, aiming to identify convergence, complementarity, and divergence. This integration was achieved through a matrix approach that aligned qualitative themes with quantitative dimensions, thereby facilitating the systematic comparison and triangulation of findings (Creswell & Creswell, 2022). The integrated analysis focused on how qualitative data elucidated or expanded upon quantitative patterns, thereby providing depth and context for the statistical findings.

Notably, the integrated analysis was conducted not only at the research level but also through collaborative interpretation with organisational members during feedback sessions. This participatory approach to analysis is consistent with the action research framework and enhances both the validity and utility of the findings by incorporating multiple perspectives and contextual knowledge (Hammersley, 2022).

Intervention Design and Implementation

Following data analysis and collaborative interpretation, targeted interventions were developed to address the priority areas identified through the organisational assessment. The intervention design process employed a participatory approach, incorporating representatives from various organisational levels to ensure that the interventions were informed by local knowledge and aligned with organisational realities.

Specific interventions were designed to address the following three priority areas: rewards, supportive mechanisms, and leadership. Each intervention was characterised by clearly defined objectives, activities, timelines, responsible individuals, resource requirements, and success indicators. The implementation was conducted in a phased manner over three months, with regular monitoring to evaluate progress and make necessary adjustments. Detailed intervention plans were documented in the action planning templates, which served to guide implementation and establish accountability mechanisms for assigned responsibilities.

Evaluation Framework

The study utilised a process-outcome evaluation framework to examine both the quality of implementation and the effects of the intervention. The process evaluation involved monitoring implementation fidelity, participation levels, and contextual factors that influenced intervention activities. The outcome evaluation assessed changes in the targeted organisational dimensions through both quantitative indicators (post-intervention OCAT scores) and qualitative feedback (participants' reflections on perceived changes).

The evaluation design acknowledges the complexity inherent in organisational change processes, recognising that interventions may yield both intended and unintended outcomes across various timeframes. Instead of concentrating solely on immediate results, the evaluation considered alterations in organisational practices, structures, and cultures that could indicate the potential for long-term transformation (Coghlan & Brydon-Miller, 2023).

Ethical Considerations

The study adhered to established ethical principles relevant to organisational research, including informed consent, confidentiality, participant well-being, and organisational

interests. Informed consent was obtained from all participants through a process that clearly explained the research purposes, procedures, potential benefits and risks, the voluntary nature of participation, and the right to withdraw without repercussions. Particular attention was devoted to rank differentials within the hierarchical organisation, ensuring that junior personnel did not feel compelled to participate due to the involvement of superior officers (Krueger & Casey, 2021).

Confidentiality measures encompassed the anonymisation of survey responses, the use of pseudonyms in qualitative data, secure data storage on password-protected devices, and the aggregation of results to prevent the identification of individual perspectives.

Although complete anonymity could not be assured in the focus groups, participants were requested to uphold the confidentiality of discussions and report omitted identifying details that might jeopardise professional relationships. Beyond procedural ethics, the study adhered to relational ethics through regular reflection on power dynamics, representation of diverse perspectives, and equitable attribution of contributions to organisational knowledge generation (Hammersley, 2022). The participatory action research framework itself functioned as an ethical approach by respecting participant agency and ensuring that research benefits extended to the organisation and its members rather than solely serving academic purposes.

Methodological Limitations and Mitigation Strategies

Several methodological limitations require acknowledgement along with the strategies implemented to mitigate their impact on research quality. First, the sample size of 50 participants, although considerable within the organisational context, imposed limitations on the statistical analysis and potentially diminished the generalisability of the findings to larger fire service contexts. This limitation was partially addressed through triangulation across multiple data sources and methods, thereby enhancing the validity of key findings despite the sample size constraints (Ibrahim & Sidani, 2022).

Second, the cross-sectional design captures organisational dynamics at a specific point in time, potentially overlooking temporal variations in organisational functioning. Although a longitudinal assessment would have offered a more comprehensive understanding of organisational patterns, the action research framework incorporated iterative assessments throughout the intervention period, thereby creating multiple observation points that partially mitigated this limitation (Schermuly & Graßmann, 2023).

Third, the researchers' position as external consultants may have influenced the participants' responses and interpretations despite efforts to establish rapport and trust. This limitation was addressed through prolonged engagement with the organisation, member checking of interpretation, and collaborative analysis that incorporated insider perspectives (Nowell et al., 2022). Furthermore, the participatory approach mitigated the traditional researcher-subject divide, fostering more balanced power relations that enhance the authenticity of data.

Fourth, the adaptation of assessment instruments to the specific organisational context, while enhancing relevance, potentially limits comparability with other studies that employ standardised measures. This trade-off between contextual sensitivity and standardisation reflects broader tensions in organisational assessments (Onguko & Ragui, 2021). This study

prioritised contextual appropriateness while documenting adaptations to enable an informed comparison with another research.

Ultimately, the dual focus on assessment and intervention introduced potential tensions between research rigour and practical utility. Consistent with Coghlan and Brydon-Miller (2023), this study addressed this tension as a productive dialectic inherent in action research rather than as a limitation to be eliminated. By maintaining methodological transparency and critically reflecting on the influence of practical considerations on research decisions, this study embraces this tension while ensuring both scholarly integrity and practical relevance.

FINDINGS AND DISCUSSION

Entry and Contracting Process

The entry and contracting processes laid the groundwork for effective organisational diagnosis and the implementation of interventions. Initial contact with the Municipal Commander indicated a willingness to receive external assistance for addressing organisational challenges, albeit with some uncertainty regarding the specific methodology to be employed. Upon receiving a detailed explanation of the action research approach and its potential benefits, the commander demonstrated enthusiasm for a collaborative diagnostic process that would involve staff across various hierarchical levels.

The formal contracting process resulted in a memorandum of understanding that defined the research objectives, methodology, participant roles, timeline, ethical safeguards, and anticipated deliverables. This document served not only as a formal agreement but also as a symbolic commitment to collaborative investigation and organisational improvement. As Schermuly and Graßmann (2023) noted, well-structured contracting establishes clear expectations and fosters psychological safety within participatory research processes.

The experience of entering and contracting with GNFS Sagnarigu is consistent with the findings of Demir (2022), who noted that hierarchical public organisations often exhibit initial reluctance, followed by engagement when presented with well-formulated organisational development proposals. The gradual establishment of trust during this phase was crucial for subsequent data collection and intervention activities, corroborating Brown and Clark's (2021) assertion that relationship development is a critical success factor in action research initiatives.

Results of Organisational Capacity Assessment

The Organisational Capacity Assessment employed Weisbord's Six-Box Model to evaluate six dimensions, with each assessed on a standardised scale, where 1.0 signified the ideal organisational state. Deviations from this ideal value highlighted areas that required attention, with higher values indicating more substantial organisational challenges. Table 1 summarises the scores for each dimension, and Figure 1 provides a visual representation of the assessment results.

Table 1: Summary of Organisational Capacity Assessment Scores

Dimension	Mean Score	Standard Deviation	Gap from Ideal
Purpose	1.3	0.41	0.3
Structure	1.5	0.38	0.5
Relationships	1.8	0.52	0.8

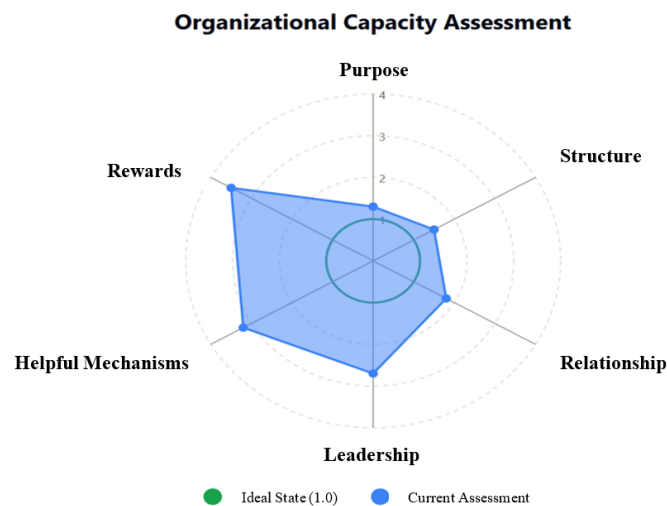|			
Leadership	2.7	0.63	1.7
Helpful Mechanisms	3.2	0.71	2.2
Rewards	3.5	0.68	2.5

Figure 1: Organisational Capacity Assessment Results

The assessment identified varying levels of organisational effectiveness across the six dimensions. The purpose and structure were identified as relative strengths, whereas rewards and helpful mechanisms were areas of significant concern. Leadership and relationships occupy intermediate positions. These findings are consistent with recent research by Kwofie et al. (2022), who observed similar patterns in public institutions across developing countries, where tangible resources and reward systems typically scored lower than the mission and structural dimensions.

Purpose

The study identified organisational purpose as the most prominent dimension, as evidenced by a mean score of 1.3, which indicates a high degree of clarity and alignment with the GNFS mission. Quantitative data revealed that 89% of respondents comprehended the organisation's mission, while 83% perceived their values as congruent. Qualitative insights corroborated these findings, with the participants highlighting their collective commitment to fire prevention and community protection.

The prominent display of mission statements in strategic locations further enhances clarity and visibility. A senior officer emphasised this point, stating, "Our purpose is clear to everyone— we protect communities from fire threats and educate the public on fire prevention." In contrast to the findings of Manu et al. (2021), which indicate that fire services often encounter ambiguity in balancing prevention and response roles, GNFS Sagnarigu exhibited a strong alignment of purpose.

As noted by Gigliotti et al. (2023), the clarity of purpose acts as a stabilising force during organisational change, thereby supporting resilience and continuity.

Structure

The study found that the organisational structure was relatively effective, as indicated by a mean score of 1.5; although opportunities for improvement remained. Quantitative data revealed that 76% of respondents understood reporting relationships, and 72% were aware of decision-making procedures; nevertheless, only 58% perceived communication channels to operate effectively across the hierarchical levels.

The qualitative findings corroborated the existence of a well-defined chain of command, wherein the Municipal Commander supervises divisional heads, as evidenced by documented organisational charts and standard operating procedures. Despite these strengths, the focus groups identified challenges in cross-functional coordination and the flow of communication. A junior officer remarked, "The hierarchy is clear, but information sometimes gets stuck between levels." This observation is consistent with Kwofie et al. (2022), who found that public safety organisations often encounter difficulties with horizontal communication despite having clear vertical structures. These findings align with the structural tensions identified by Zaitul et al. (2023), who noted that fire services require both rigid command structures for emergency responses and flexible coordination for non-emergency functions.

Relationships

The study found that organisational relationships were moderately effective, with a mean score of 1.8; however, significant variations were observed across different types of relationships. Quantitative data indicated that 81% of the respondents reported strong peer relationships within their work units, whereas only 45% expressed satisfaction with cross-departmental relationships. Furthermore, while 63% acknowledged the existence of conflict management procedures, only 52% believed that they functioned effectively.

Qualitative insights have demonstrated the presence of strong camaraderie among operational staff, particularly those engaged in high-stress emergency responses, corroborating the findings of Amoako et al. (2022) regarding team cohesion in Ghanaian public safety organisations. Nevertheless, tension was observed between the hierarchical levels and functional boundaries. One participant noted, "Relationships within teams are strong, but there is sometimes tension between management and junior staff." These observations are consistent with Demir (2022), who identified that fire services often exhibit robust peer relationships but encounter challenges in vertical coordination, which impacts organisational learning and adaptability.

Leadership

This study identified substantial challenges in leadership, as evidenced by a mean score of 2.7, which suggests a discrepancy between existing leadership practices and ideal standards. The quantitative data revealed that only 38% of the respondents perceived that leadership effectively encouraged innovation; 42% believed that organisational priorities were communicated effectively, and 35% recognised robust leadership development processes.

Qualitative insights revealed a predominantly top-down leadership style, characterised by limited delegation and participation in decision-making. Junior- and mid-level staff expressed a desire for greater involvement in decisions affecting their work, although they acknowledged

the need for clear command structures during emergencies. One officer noted, "Our leaders are experienced, but they often make decisions without consulting those who implement them."

Document analysis confirmed limited formal leadership development, with promotions primarily based on seniority rather than capability. This is in contrast with the best practices outlined by Nasurdin et al. (2022). Olawale and Olaniran (2021) highlighted similar challenges in African public institutions, where hierarchical traditions hinder participatory leadership transitions.

Helpful Mechanisms

The study identified significant concerns regarding helpful mechanisms, with a mean score of 3.2, highlighting challenges in tools, resources, and technologies supporting organisational operations. Quantitative data revealed that only 28% of respondents felt adequately equipped for their duties, 22% agreed that resource management systems were effective, and 31% had access to the necessary technological tools.

Qualitative insights reinforced these concerns, documenting inadequate protective equipment, limited communication devices, ageing fire trucks, and insufficient administrative computing resources. One participant observed, "Despite providing professional service, we frequently lack basic equipment. Sometimes, we respond to fires without adequate protective gear, putting ourselves at risk."

Document analysis confirmed formal resource requests and maintenance protocols, but interviewees described inefficiencies due to centralised procurement and limited regional autonomy. These findings align with those of Nkrumah et al. (2021), who reported similar equipment shortages in sub-Saharan African fire services, and those of Oyedele (2021), who linked resource adequacy to emergency response effectiveness.

Rewards

Rewards emerged as the most problematic organisational dimension, with a mean gap score of 3.5. Only 18% of respondents believed that the organisation had an effective reward system, 15% felt they were adequately acknowledged, and 22% perceived fairness in the reward distribution. The qualitative data highlighted major concerns, including inequitable promotions, lack of recognition for exceptional performance, inconsistent overtime compensation, and inadequate welfare provisions.

One participant noted, "We risk our lives during operations but rarely receive acknowledgement beyond our basic salary. There is no formal recognition or incentive for individuals who exceed expectations."

Document analysis confirmed the absence of a structured reward policy linking performance to recognition or compensation, with existing policies focusing solely on salary structures.

These findings align with those of Amoako et al. (2022), who identified weaknesses in the reward systems of Ghanaian public safety organisations. Nasurdin et al. (2022) emphasise that in resource-constrained environments, non-financial recognition and professional development are crucial for motivation.

Feedback and Collaborative Interpretation

The feedback session was a pivotal stage in the action research process, fostering a shared understanding of organisational realities and a commitment to improvement. The findings were presented using visual aids and illustrative quotes, followed by discussions that validated the results and explored the underlying issues.

Participants confirmed the assessment results and identified key connections between organisational challenges. Leadership approaches influenced both relationship quality and reward perceptions, whereas historical procurement and hierarchical traditions shaped resources and leadership patterns. Additionally, the participants recognised that similar challenges affected other GNFS stations, suggesting systemic issues rather than local ones.

This collaborative interpretation process reinforces Hammersley's (2022) argument that participatory sense-making enhances analytical accuracy and commitment to change. By shifting findings from external evaluations to shared insights, the session laid a strong foundation for subsequent intervention planning and ensured that organisational members were actively engaged in the improvement process.

Intervention Design and Implementation

Following collaborative interpretation, the research team worked with organisational representatives to design targeted interventions that address priority challenges. The intervention design process employed a structured planning approach that identified the objectives, activities, responsibilities, timelines, and evaluation metrics for each intervention area. Table 2 summarises the intervention framework developed during this collaborative process.

Table 2: Summary of Intervention Framework

Priority Area	Objectives	Key Activities	Timeline	Responsible Parties
Rewards	Develop formal recognition mechanisms; Establish transparent performance-reward linkages	Review existing reward practices; Draft comprehensive reward policy; Implement immediate recognition initiatives	3 months	Commander; Administrative Officer; Staff Representatives
Helpful Mechanisms	Improve resource acquisition; Enhance resource utilisation efficiency	Develop resource prioritisation framework; Conduct advocacy training; Implement equipment tracking system	3 months	Logistics Officer; Divisional Heads; External Resource Person
Leadership	Enhance participative leadership practices; Develop leadership capabilities across ranks	Conduct leadership development workshop; Implement consultative decision-making processes; Establish mentoring program	3 months	Commander; External Facilitator; Designated Team Leaders

Implementation followed a phased approach over three months, beginning with immediate actions that required minimal resources while developing structures for more complex initiatives. Regular monitoring meetings tracked the implementation progress and addressed emerging challenges. The implementation process engaged approximately 70% of organisational members in at least one intervention activity, resulting in broad ownership of the change process.

The intervention approach aligns with contemporary best practices for organisational development. As Nasurdin et al. (2022) recommend, the interventions addressed both the structural and behavioural dimensions of organisational effectiveness while maintaining cultural sensitivity. The collaborative design process, which incorporates local knowledge and preferences, reflects Demir's (2022) finding that contextually adapted interventions generate greater sustainability than standardised approaches.

Impact of Interventions

The impact assessment conducted three months after intervention implementation revealed measurable improvements across targeted dimensions, albeit with varying magnitudes of change. Table 3 presents the pre- and post-intervention scores for the three priority dimensions, indicating overall positive trends.

Table 3: Pre- and Post-Intervention Assessment Scores

Dimension	Pre-Intervention Score	Post-Intervention Score	Change
Rewards	3.5	2.8	-0.7
Helpful Mechanisms	3.2	2.6	-0.6
Leadership	2.7	2.2	-0.5

Beyond quantitative indicators, qualitative assessments revealed meaningful improvements in organisational practices and participant experiences. In the realm of rewards, the development of a documented policy submitted to headquarters for approval enhanced transparency, while immediate recognition initiatives improved perceptions of acknowledgement. As one participant stated, "Having a clear reward policy makes a big difference; we now understand what exceptional performance means and how it will be recognised." For helpful mechanisms, improved resource prioritisation and tracking systems have increased efficiency, despite ongoing equipment shortages. Submitting comprehensive equipment requirements to headquarters resulted in modest improvements in safety materials, whereas advocacy training enhanced the organisation's ability to effectively communicate resource needs.

Leadership changes include greater staff consultation on non-emergency decisions, increased transparency in information sharing, and better acknowledgement of officer contributions. These incremental improvements align with research by Mohamad et al. (2023) and Demir (2022), which highlights transparency as a foundation for long-term change and the gradual nature of organisational development in public safety institutions.

Discussion of Findings in Theoretical Context

This study contributes to the theoretical understanding of organisational effectiveness in public safety institutions, particularly in developing countries. It challenges universalist perspectives by demonstrating that effectiveness models must be context-sensitive, as evidenced by

variations in the dimensions of Weisbord's Six-Box Model compared with Western contexts (Akpan & Amran, 2023). The findings also support system perspectives on organisational functioning, highlighting the interaction between formal structures, informal relationships, and leadership behaviours in shaping outcomes (Zaitul et al., 2023).

Additionally, this study points out the importance of resource adequacy and reward systems in overall effectiveness. While mission clarity and structural definition provide a foundation, resource limitations constrain their impact (Kwofie et al., 2022). Findings on organisational change suggest that hierarchical institutions may initially adopt participative methods but require a longer cultural transformation (Schermuly & Graßmann, 2023). Ultimately, this study illustrates the value of participatory research in both knowledge generation and practical application (Hammersley, 2022).

Implications for Practice
This study offers five key practical insights for organisational development in fire services and public safety institutions. First, it highlights the importance of conducting in-depth diagnostic assessments prior to implementing interventions. The study revealed complex organisational patterns that could have been overlooked in a superficial needs assessment, supporting Onguko and Ragui's (2021) argument for comprehensive capacity evaluations in public institutions.

Second, the findings suggest the need to strike a balance between universal best practices and local adaptations. While established OD principles offer useful advice, putting them into action needs changes to match cultural and institutional settings, highlighting Mukerjee and Prasad's (2021) point about the importance of considering context in public sector development.

Third, addressing reward systems and resource mechanisms is critical for public safety organisations. These dimensions emerged as the most significant organisational challenges, suggesting that they should be prioritised in interventions, particularly in resource-constrained environments.

Fourth, participatory approaches enhance both assessment accuracy and commitment to intervention. The collaborative methods used in the study fostered shared understanding and ownership, supporting Coghlan and Brydon-Miller's (2023) advocacy for participatory OD methods in hierarchical organisations.

Ultimately, striking a balance between immediate improvements and long-term capacity-building is crucial. While some interventions addressed urgent challenges, others focused on developing sustainable organisational capabilities, aligning with Nasurdin et al.'s (2022) recommendations for layered intervention strategies that address both short-term issues and structural capacity gaps.

Limitations and Future Research Directions
This study has several limitations that should be considered when interpreting the findings. First, it focuses on a single GNFS station, which limits the generalisability of the results to other fire service contexts with different characteristics. Second, the relatively short intervention period (three months) restricted the ability to assess long-term impacts that might emerge through sustained organisational development efforts. Third, the cross-sectional assessment

design captures organisational patterns at specific points in time rather than tracking continuous developmental trajectories. Fourth, despite methodological rigour, the participatory approach introduces elements of subjectivity in both assessment and interpretation.

These limitations suggest important directions for future studies. Comparative studies across multiple fire service stations would help to identify common challenges and determine whether systemic rather than localised interventions are needed. Longitudinal studies that extend beyond short-term interventions would provide insights into sustainability patterns and long-term transformation in hierarchical public organisations. Mixed-methods research, integrating qualitative assessments with broader quantitative measurements, would enhance both analytical depth and generalisability. Finally, studies that explicitly examine the relationship between organisational effectiveness dimensions and operational performance metrics would clarify how internal organisational factors translate into public safety outcomes.

CONCLUSION AND RECOMMENDATIONS

This study assessed the organisational effectiveness of the GNFS in Sagnarigu Municipal, using Weisbord's Six-Box Model within a participatory action research framework. The findings reveal organisational strengths in purpose (clear mission understanding) and structure (well-defined reporting relationships); moderate effectiveness in relationships (strong team cohesion but challenges in cross-hierarchical interactions); and significant concerns in leadership, helpful mechanisms, and rewards (particularly resource adequacy and recognition systems).

Targeted interventions over three months produced measurable improvements. A formal reward policy enhances transparency and staff satisfaction, even in the face of resource limitations. Resource prioritisation and advocacy initiatives improved equipment management and yielded modest safety material gains. Leadership development activities increased staff involvement in non-emergency decisions and strengthened recognition of officer contributions. These outcomes demonstrate that targeted organisational development interventions can effectively enhance performance, even in resource-constrained public safety institutions.

Conclusions

This study of GNFS yields four key conclusions regarding organisational effectiveness. First, internal organisational factors (structural, relational, and cultural) significantly impact on the fire services' ability to fulfil their public safety mandate, extending beyond just technical capabilities. Second, participatory diagnostic approaches successfully generated accurate assessments and created shared ownership of solutions, demonstrating the value of organisational developmental approaches even in resource-constrained environments. Third, the varying effectiveness across organisational dimensions suggests the need for contextually adapted assessment models specific to fire services in developing nations, as the application of Weisbord's Six-Box Model revealed patterns different from those in Western contexts. Finally, the interconnected nature of the challenges (leadership, rewards, resources, and organisational climate) emphasises the importance of systemic, rather than isolated, interventions to address both immediate issues and underlying patterns.

Recommendations

This research on GNFS offers practical recommendations for enhancing organisational effectiveness. For GNFS Sagnarigu Municipal, this study proposes establishing a comprehensive inventory system of protective equipment, accompanied by regular audits, to address safety risks. It recommends implementing formal and informal recognition mechanisms to acknowledge personnel contribution, particularly when financial incentives are limited. Organisations should develop standardised orientation processes for new staff, including technical training and organisational acculturation. GNFS leadership should adopt participative approaches for non-emergency decisions while maintaining command structures for emergencies. Strategic plans and operational procedures should be displayed in accessible locations in order to enhance transparency and understanding. Additionally, consistent welfare policies that address personnel needs during stressful operations are recommended.

At the policy level, GNFS headquarters should develop national guidelines for assessing organisational effectiveness by combining established frameworks with contextually relevant criteria. Standardised frameworks for reward systems and resource allocation should be established to create greater equity across regions. To ensure knowledge transfer when experienced leaders retire, we need leadership development programmes with precise succession planning. The service should implement integrated performance evaluation systems that combine operational metrics with organisational effectiveness indicators. Finally, dedicated funding mechanisms should be established for essential safety equipment.

For future research, the study recommends comparative studies across multiple fire stations to identify common challenges, longitudinal research to assess the sustainability of interventions, studies investigating relationships between organisational factors and operational performance, research on how resource constraints influence effectiveness in developing countries, and exploration of alternative assessment frameworks specific to fire services in developing nations.

Contributions of the Study

This study of organisational effectiveness in GNFS offers significant contributions across multiple domains. In terms of research, this study extends Weisbord's Six-Box Model to fire services in developing nations, demonstrating both its applicability and necessary adaptations for these specific contexts. The work advances the understanding of organisational effectiveness in public safety institutions by identifying patterns unique to fire service environments, particularly regarding resource allocation mechanisms and reward systems. Additionally, it illustrates how participatory action research can be effectively implemented within hierarchical organisations by reconciling collaborative approaches with command structures.

The practical contributions impact both the specific organisation studied and the fire service's practices more broadly. For GNFS Sagnarigu Municipality, the research provided a structured assessment of organisational effectiveness, implemented targeted interventions for priority challenges, and developed an internal capacity for ongoing improvement. A wider fire service community offers a tested approach to organisational assessment and development adaptable to similar resource-constrained contexts. The documented interventions demonstrated

achievable improvements and provided practical insights regarding leadership development, resource management, and recognition systems applicable to other fire service organisations. From a policy perspective, this study highlights the importance of incorporating organisational effectiveness considerations into fire service frameworks, which often prioritise technical capabilities over organisational dimensions. This emphasises the need for contextually appropriate policies that acknowledge the distinctive characteristics of fire services in developing nations rather than uncritically adopting approaches from different environments. Finally, it demonstrates the value of participatory approaches to policy implementation in hierarchical organisations, where top-down directives frequently encounter resistance.

Concluding Remarks

This research on GNFS demonstrates that internal organisational factors, such as leadership approaches, reward systems, relational dynamics, and organisational structures, are crucial determinants of public safety outcomes, extending beyond just technical capabilities and resources. This study provides evidence that targeted interventions can achieve meaningful improvements despite significant resource constraints. It validates the effectiveness of contextually sensitive participatory approaches to organisational assessment and development, which generate both accurate diagnoses and committed improvement actions. This collaborative methodology lays the foundations for sustainable change. It offers a promising model for improving fire service throughout Ghana and similar developing contexts, where maximising organisational effectiveness with limited resources is essential for delivering critical public safety services.

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