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FIRE HAZARD RESPONSE IN DISASTER PREPAREDNESS: A CASE OF NORTON TOWN COUNCIL

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APPROVAL FORM

The undersigned certify that they have read this project and have approved its submission to the Disaster Risk Reduction Department for marking after confirming that it conforms to the Department requirements.



Supervisor:

Date: 04.08.2026

DECLARATION

I Florence Rice, B213134B declare that this dissertation is the product of my own work with only exception of the references which have been credited to their sources. The work was not copied from any source without acknowledged of the publisher.

Signed…

Date 1 June 2026

DEDICATION

To my loving late brother (Devine). my mother and father, your unwavering support, guidance and encouragement have been the driving force behind my academic journey. Your selflessness, kindness and unconditional love have inspired me to reach for my dreams. This dissertation is a testament to your unwavering belief in me.

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ABSTRACT

Rapid urbanisation within developing secondary towns often outpaces public infrastructure, creating severe vulnerabilities to fire disasters, yet a critical research gap remains regarding how macro-level fleet allocations interact with localised utility decay and informal spatial growth in smaller municipalities. To address this, this study adopted a mixed-methods research design , utilising structured household questionnaires across formal and informal peri-urban zones in Norton, Zimbabwe, alongside qualitative key informant interviews with municipal engineering, planning, and emergency officials. The empirical findings revealed that despite recent central government allocations of modern fire engines, operations are crippled by a near-total collapse of the hydrant network, severe fuel rationing, and unnavigable, unmapped roads that push response times past 30 minutes. Furthermore, the council routinely diverts fire levies to cover immediate administrative debts while relying on outdated bylaws, creating a severe public trust deficit that forces residents to crowdsource their own safety through informal WhatsApp networks and bucket brigades. This research concludes that technical equipment upgrades yield zero net safety gains when uncoupled from local infrastructure and transparent financial management, offering insights that directly benefit urban planners, local government policymakers, and international development agencies by providing a practical blueprint for integrating spatial planning enforcement with ring-fenced emergency financing to repair the institutional trust contract and formally empower grassroots community defense networks.

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CHAPTER ONE: INTRODUCTION

1.1 Introduction

This chapter introduces the study by providing the background to the research on fire hazard response and disaster preparedness in Norton Town. It outlines the problem under investigation, the aim and objectives of the study, and the research questions guiding the inquiry. The chapter further presents the justification and significance of the study, defines key terms, and outlines the scope and limitations of the research. Finally, it presents the organisation of the study, providing an overview of how the subsequent chapters are structured.

1.2 Background to the study

Norton Town is administered by the Norton Town Council, a local authority mandated to provide essential municipal services that support public safety, environmental protection, and sustainable urban development. Among these responsibilities, the provision of emergency services, particularly fire hazard management, remains a critical function.

Fire hazards are inherently unpredictable and can escalate rapidly if not addressed through effective preparedness and response systems. While prevention measures such as regulations and public awareness are important, the ability of a local authority to respond swiftly and efficiently to fire incidents remains central to disaster preparedness. Hazard response mechanisms including trained personnel, functional equipment, clear command structures, and coordinated communication systems—determine the extent to which fire incidents can be contained and managed. In the absence of such mechanisms, even minor fires can develop into major disasters with far-reaching social and economic consequences.

The town comprises nine high-density suburbs Katanga, Ngoni, Maridale, Johannesburg, Marshlands, Garikai (Hlalani-Khuhle), Kingsdale, Swallowfield, and Kasiroore and six low-density suburbs Damafalls, Nharira View, Twinlakes, Knowe, Trafalgar, and Galloway. Notably, Norton has no middle-density suburbs. Both high- and low-density suburbs are vulnerable to fire hazards, particularly due to high population concentration in the former and infrastructural value in the latter. There are thirteen shopping centres distributed across these suburbs: Katanga hosts Katanga and Calfa Shopping Centres; Ngoni and Maridale each have two; Johannesburg has three; and Nharira View, Twinlakes, Knowe, and Galloway each have one. These commercial centres are critical hubs of economic activity and are particularly vulnerable to fire-related losses. The town also has a wide range of educational institutions,

including at least seven pre-schools, fifteen primary schools, and ten secondary schools, all of which are susceptible to fire hazards. Similarly, Norton's health sector consisting of one hospital with an eye unit, two public clinics, eight private clinics, six private surgeries, two dental surgeries, and eleven pharmacies provides essential services to the community but remains exposed to fire risks.

The business environment in Norton is diverse, encompassing commercial enterprises, industrial businesses, home-based industries, tuckshops, mobile businesses, designated markets, and informal sector operations. These economic activities require robust fire protection systems. The recent massive fire at Harare's Mbare Musika on 9 October 2024 highlights the devastating potential of fire outbreaks in commercial hubs, underscoring the importance of preparedness in towns such as Norton. In terms of property, Norton comprises 16,921 high-density stands, 268 medium-density stands, 9,828 low-density stands, 491 industrial stands, 759 commercial stands, 19 institutional stands, and 297 classified as "others", bringing the total to 28,583 properties. Each property category represents varying levels of vulnerability to fire hazards.

This research was triggered by the increasing exposure of Norton Town to fire hazards arising from its expanding and diverse business environment, coupled with the scale and distribution of properties within the town. Norton hosts a wide range of economic activities, including commercial enterprises, industrial operations, home-based industries, informal sector businesses, markets, and mobile traders. These activities often involve the use of flammable materials, electrical equipment, and temporary structures, thereby heightening the risk of fire outbreaks and increasing the demand for effective fire protection and emergency response systems.

Norton has already experienced significant fire incidents. For example, a major fire outbreak occurred at the council landfill from 3–7 September 2024, which recurred a month later from 3–7 October 2024. While both fires were eventually extinguished, the incidents revealed major operational and resource-related challenges. Public infrastructure, therefore, remains at risk of recurring fire outbreaks. Open spaces within Norton are also prone to seasonal fire hazards, especially during the hot and dry summer months of September and October. Such fires are often caused by land-clearing activities undertaken by farmers or through negligence, such as lit cigarettes discarded in the bush. These fires not only threaten property but also destroy ecosystems.

Administratively, the Norton Town Council operates through six departments: Central Administration, Housing, Engineering, Health, Audit, and Finance. These departments collectively bear responsibility for local service provision, including fire hazard management. However, the absence of a fully established fire station and fire department suggests potential gaps in preparedness. This research is triggered by the increasing occurrence and impact of fire incidents within urban and peri-urban settings, coupled with growing concerns regarding the capacity of local authorities to respond effectively to such hazards. In Norton Town, rapid population growth, expanding residential settlements, increased industrial activity, and persistent waste management challenges have heightened the town's vulnerability to fire outbreaks. These dynamics have placed significant pressure on the Norton Town Council's fire hazard response systems, raising questions about the adequacy of existing preparedness measures, institutional coordination, and operational capacity. This study, therefore, seeks to assess the overall level of preparedness of the Norton Town Council, evaluating the extent to which its departments are coordinated and equipped to effectively manage fire hazards

1.3 Problem statement

In Norton Town, although some actions are taken, the fire hazard-response is unsatisfactory and needs immediate focus. The Norton Town Council has purchased a fire truck under the Belarus programme by the Government of Zimbabwe and informally provides support to other municipalities in the region like the Chegutu Fire Brigade. Nevertheless, the lack of a dedicated fire station and a properly elaborated fire department seriously restricts the ability of the Council to effectively and swiftly respond to fire emergencies. External aid usually leads to slow response time as seen in the recent fire outbreaks at the landfill site in September and October, 2024. These delays decrease the capacity of emergency responders to contain fires within a short time and widen prospects of massive property and environmental damage.

The issue is also compounded by the high rate of urbanisation and increased economic activities in Norton. The Zimbabwe National Statistics Agency (ZimStat, 2022) lists a population of more than 87,000 residents of the town who inhabit various residential zones such as high-density suburbs, such as Katanga and Ngoni, and low-density areas, such as Knowe and Twinlakes. Moreover, the town is home to thirty-three shopping malls and other businesses, learning institutions, and health centers. Such developments expose the town to fire risks especially in the highly populated residential and commercial and industrial areas

where fire outbreaks can spread very quickly unless response mechanisms are properly in place.

According to the best practices of the international community, fire hazard management must be supported by the availability of well-equipped fire stations, trained staff, and reliable firefighting equipment, adequate infrastructure of hydrants, and effective community involvement in fire prevention (Adeleke, 2019; Kihara, 2021). But in a number of these areas Norton Town Council is severely constrained. There exist major loopholes in man power, modern firefighting equipment, hydrant facilities, and emergency coordinated plans. In addition, community education and involvement in fire prevention efforts are still low as evident in the frequent land fill fires and uncontrolled veld fires in the dry season.

The issue, thus, is that Norton Town Council is currently deficient in a fully operational system of effective fire hazard management, which is well-equipped to be able to secure lives, property, and critical infrastructure. Devoid of a thorough evaluation of preparedness and response capacity, these gaps can remain open to further fire eruptions that can lead to economic damages, environmental damages, and health risks to the population. This research thus aims at assessing how effective the fire hazard response mechanisms are in improving disaster preparedness in the Norton Town Council.

1.1 Aim of the Study

The aim of this study is to assess the effectiveness of fire hazard response mechanisms in enhancing disaster preparedness within Norton Town Council.

1.2 Specific Objectives

The specific objectives of the study are:

i. To determine the infrastructure available for fire hazard emergency response in Norton.
ii. To assess the hazard response in Norton Town Council
iii. To determine preparedness for fire hazard emergencies in Norton Town Council.

1.3 Research Questions

The study was guided by the following research questions:

i. What infrastructure is available to Norton Town Council for fire hazard emergency response?
ii. What manpower exists within Norton Town Council to manage fire hazard emergencies?
iii. What planning mechanisms are in place for fire hazard emergency response?

1.4 Justification / Significance of the Study

Fire hazards are a growing concern in urban Zimbabwe, and Norton is no exception. With a population of over 87,000 (ZimStat, 2022) and an expanding industrial and commercial base, the risks associated with fire outbreaks are significant. This study is therefore important for several stakeholders as follows:

1.4.1 Government of Zimbabwe

The study will assist the Government of Zimbabwe in strengthening national disaster risk reduction frameworks by highlighting gaps in local authority fire preparedness. It aligns with the Civil Protection Act [Chapter 10:06], which places responsibility on local authorities to safeguard communities against hazards. The findings will inform policy development, budget prioritization, and the decentralization of emergency services.

1.4.2 To Non-Governmental Organizations (NGOs)

The study will provide NGOs and development partners with evidence-based insights into fire hazard vulnerabilities in Norton. NGOs focusing on disaster risk reduction, public health, and environmental conservation can use the findings to design community-based fire safety awareness campaigns, capacity-building initiatives, and equipment donation programs. This will enhance collaborative risk management between state and non-state actors.

1.4.3 To academic institutions

For academic institutions, the study contributes to the growing body of literature on local authority disaster preparedness in developing countries. It provides a practical case study on Norton, which can be used by students and researchers in public administration, disaster risk management, and urban planning. Furthermore, it opens opportunities for future comparative research with other towns in Zimbabwe and beyond.

1.4.4 To local communities

Local communities are the primary beneficiaries of improved fire hazard preparedness. This study will raise awareness of the current state of fire response capacity within Norton and empower residents to advocate for better services. Communities will also benefit indirectly from the Council's enhanced planning and resource allocation, which can reduce fire-related loss of life, property destruction, and environmental degradation.

1.5 Scope / Delimitation of the study

The scope of this study is defined in terms of conceptual, spatial, and temporal boundaries, which collectively guide the focus and depth of the research while ensuring manageability and clarity.

1.7.1. Conceptual scope

Conceptually, the study is limited to fire hazard response and disaster preparedness within a municipal context. The research focuses specifically on the preparedness of Norton Town Council to prevent, respond to, and manage fire-related emergencies. Key conceptual elements examined include fire hazard response mechanisms, institutional coordination, availability and adequacy of firefighting infrastructure and equipment, manpower capacity, emergency planning, training, and response speed. The study deliberately excludes other forms of disaster preparedness such as floods, droughts, pandemics, road traffic accidents, and public health emergencies. By narrowing the conceptual focus to fire hazards, the study allows for an in-depth and systematic assessment of preparedness within a single disaster domain.

1.7.2. Spatial scope

Spatially, the study is confined to Norton urban area, which falls under the administrative jurisdiction of Norton Town Council. All data collection and analysis are limited to municipal departments, fire service operations, and community settings within this geographic area. The study does not extend to surrounding towns or districts, nor does it assess the preparedness or operational capacity of external emergency service providers such as Chegutu Municipality Fire Brigade, private industrial fire services, or volunteer organizations that may occasionally assist during major incidents. This spatial delimitation ensures that the findings reflect the internal capacity and institutional preparedness of Norton Town Council alone.

1.7.3. Temporal scope

Temporally, the study focuses on fire hazard preparedness and response practices within a defined contemporary period, covering the most recent operational and planning cycle of Norton Town Council. Specifically, the research examines preparedness measures, policies, and response experiences within the period 2021 to 2025, which aligns with the Council's current strategic planning framework. This time frame allows the study to assess current institutional capacity, recent fire incidents, and ongoing preparedness initiatives, while excluding historical practices that may no longer reflect present operational realities.

1.6 Limitations of the study

This study faced several limitations:

1.8.1. Time and financial constraints

The study will be constrained by limited time and financial resources, which will restrict the research to Norton urban area and exclude peri-urban and rural settings that may present different fire risk dynamics. This limitation will be addressed by adopting a qualitative case study approach, enabling an in-depth examination of fire hazard preparedness within the selected area. The focused scope will allow for rich, context-specific insights despite the limited geographical coverage.

1.8.2. Restricted access to municipal data

Access to certain municipal documents, particularly detailed budgetary and strategic reports, will be limited due to confidentiality policies within Norton Town Council. This limitation will be addressed through data triangulation, whereby information obtained from interviews, focus group discussions, and publicly available policy documents will be cross-checked to validate findings and enhance credibility.

1.8.3. Reliance on self-reported data

The study will rely partly on self-reported data from Council officials and community members, which may introduce bias or subjectivity. This limitation will be addressed by employing probing interview techniques, comparing responses across different participant categories, and conducting member checking to confirm the accuracy of interpretations.

1.8.4. Variations in technical knowledge among respondents

Differences in technical knowledge among some respondents, particularly community members, may affect the depth of technical discussions on fire hazard preparedness. This limitation will be addressed by simplifying interview questions, using locally understandable language, and contextualising technical concepts during data collection. Responses will be carefully interpreted and supported with information from knowledgeable municipal personnel and relevant literature.

1.9. Definition of terms

The most important terms used in this study are as follows to have clarity and understanding:

Fire Hazard Response

Fire hazard response refers to the systematic arrangement of strategies, actions, and institutional mechanisms employed to prevent, control, and manage fire incidents. It encompasses the operations of fire brigades, emergency services, inter-agency coordination, and both preventive and reactive measures aimed at reducing fire-related risks and impacts (Aitsi-Selmi & Murray, 2016; NFPA, 2018).

In this study, fire hazard response refers to the operational capacity of Norton Town Council to manage fire emergencies, including the availability and adequacy of firefighting equipment, preparedness and training of personnel, response speed, coordination among municipal departments, and community involvement in fire prevention initiatives.

Disaster preparedness

Disaster preparedness is the state of readiness of individuals, communities, and institutions to anticipate, respond to, and recover from the impacts of hazards through planning, training, awareness, early warning systems, and resource mobilisation (UNDRR, 2020).

Within the context of this research, disaster preparedness refers to the extent to which Norton Town Council and the local community are ready to effectively respond to fire hazards, as reflected in planning arrangements, emergency response capacity, coordination mechanisms, and availability of resources. Disaster preparedness serves as the outcome variable used to assess the effectiveness of fire hazard response mechanisms.

Effectiveness

Effectiveness is defined as the degree to which an intervention or system achieves its intended objectives and produces desired outcomes, particularly in reducing risk and improving resilience (Wisner et al., 2020).

In this study, effectiveness refers to the extent to which fire hazard response mechanisms in Norton Town Council successfully enhance disaster preparedness, as measured through response timeliness, adequacy of resources, operational efficiency, stakeholder coordination, and perceived reduction of fire risk within the community.

Community engagement

Community engagement involves the active participation of local residents and stakeholders in disaster risk reduction processes, including awareness campaigns, compliance with safety regulations, hazard reporting, and collective preparedness actions (Mavhura, 2017).

For this research, community engagement refers to the involvement of Norton residents in fire preparedness activities such as participation in fire drills, adherence to fire safety regulations, reporting fire hazards, and cooperation with municipal authorities in fire risk reduction initiatives.

Municipal fire brigade

A municipal fire brigade is an officially established local authority service responsible for fire suppression, emergency response coordination, rescue operations, and fire prevention within a defined municipal jurisdiction (NFPA, 2018).

In the context of this study, the municipal fire brigade refers to the fire-fighting unit under Norton Town Council, whose capacity, training, availability of equipment, and operational efficiency are assessed as central components of fire hazard response and disaster preparedness.

1.7 Conclusion

In this chapter, the study was presented by providing the background and context of the fire hazard risks in Norton Town. It also pointed to the growing susceptibility of the town to fire events as a result of the rapid urbanisation, population increase, commercial activities being spread in large areas, and the lack of a fully formed municipal fire management regime. The research problem was also introduced in the chapter and it focuses on the fact that Norton Town Council has a limited capacity to effectively respond to fire hazards even though some response mechanisms are in place. Among the key challenges raised by the chapter are the inadequacy of fire station and fully functional fire department, inadequate firefighting infrastructure and equipment, reliance on other municipalities, in the event of a disaster, and poor community awareness and involvement in the fire prevention related activities. These issues can be seen as raising doubts regarding the sufficiency of the readiness of the Council to respond to fire-related incidents and safeguard lives, property, and infrastructure. The chapter also identified the aim and objectives and research questions that govern the study, all of which are concerned with the study of the interconnection of the fire hazard response and the disaster preparedness. The importance of the research was also mentioned, with the focus on its applicability to government policy, municipal management, scholarly research and local safety. Moreover, the chapter helped to understand the main concepts applied to the study and the scope of the study and limitations. In general, the problems, which were outlined in this chapter, create preconditions to conduct a systematic evaluation of fire hazard

response mechanisms within the Norton Town Council. The following chapter thus examines pertinent theoretical and practical literature so as to give conceptual background in establishing fire hazard response and disaster preparedness in such like situations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Disaster preparedness is a burning issue of modern urban management, especially in the planning of fire hazards, as they are a constant danger to the human life, property, and economic stability around the globe. Fire disasters are complicated issues and an integrated institutional response, the active involvement of the community and the plan are necessary to reduce losses. The literature highlights the fact that, proper disaster preparedness largely revolves around the capacity of local authorities to execute well-organized, coordinated, and timely hazards response mechanisms in an organized manner. The chapter is based on a literature review of fire hazard response and disaster preparedness following the hierarchical approach based on the global-based views, regional-based experiences in Africa, national-based views in Zimbabwe, and lastly, local-based views in Norton Town Council. The chapter also outlines some gaps in the literature currently available along with creating a theoretical and conceptual framework to inform this study.

2.2 Theoretical Conceptualisation

Theoretical conceptualisation provides a lens through which a research problem can be understood and analysed. According to Creswell and Creswell (2018), a theoretical framework serves as a foundation that guides the interpretation of findings and explains relationships among variables under investigation. Similarly, Kumar (2019) argues that theories assist researchers in understanding complex social phenomena by providing systematic explanations of observed events. In disaster management studies, theoretical frameworks are essential for explaining how preparedness measures influence hazard response and resilience (Alexander, 2015). Guided by these perspectives, this study adopts a theoretical framework that explains the relationship between fire hazard response and disaster preparedness within local authorities. The framework informs the analysis of fire hazard response mechanisms employed by Norton Town Council and their contribution to effective disaster preparedness. Furthermore, the section examines the applicability of the selected theory to the municipal context and highlights gaps identified in previous studies, particularly regarding its implementation in small and resource-constrained municipalities.

2.2.1 Disaster Risk Reduction (DRR) Theory

The Disaster Risk Reduction (DRR) framework provides a foundational lens to examine fire hazard response mechanisms and disaster preparedness. DRR theory, as articulated by UNDRR (2020), posits that disasters are not solely natural phenomena but arise from the

interaction between hazards, vulnerability, and the capacity of institutions and communities to respond. It emphasizes proactive approaches such as risk assessment, mitigation, preparedness planning, response, and recovery as interconnected processes that collectively reduce disaster impacts (Aitsi-Selmi & Murray, 2016). In the context of municipal fire hazard response, DRR highlights the importance of initiatives such as community awareness campaigns, training of fire personnel, early-warning systems, and coordinated emergency planning as critical components of preparedness. Empirical studies further indicate that DRR frameworks assist municipalities in identifying vulnerabilities, improving resource allocation, and strengthening stakeholder collaboration, thereby enhancing overall disaster preparedness (Kapucu & Garayev, 2016; Petousis et al., 2018).

In relation to this study, Disaster Risk Reduction (DRR) theory provides a relevant framework for assessing how fire hazard response mechanisms within Norton Town Council contribute to disaster preparedness. DRR emphasizes the systematic reduction of disaster risks through preparedness, mitigation, institutional capacity building, and stakeholder participation (UNDRR, 2015). According to Wisner et al. (2012), effective disaster preparedness depends on the ability of institutions to identify risks, strengthen response capacities, and enhance community resilience. The theory therefore enables the study to evaluate whether Norton Town Council's fire hazard response systems, including firefighting equipment, personnel readiness, planning structures, and coordination mechanisms, are aligned with proactive risk reduction principles. Furthermore, DRR theory recognizes the importance of community participation in disaster management, arguing that preparedness is most effective when local communities are actively involved in risk identification and response planning (Mercer et al., 2010).

Despite its relevance, the application of DRR theory in existing literature reveals several shortcomings that this study seeks to address. Previous studies have largely focused on disaster preparedness and response in large urban centres and national-level systems, with limited attention given to small and medium-sized municipalities where resources and institutional capacities are often constrained (Aitsi-Selmi et al., 2015). Scholars have also noted that DRR frameworks are frequently applied in a generalized manner, with insufficient consideration of local contextual realities that influence vulnerability and preparedness outcomes (Gaillard & Mercer, 2013). In many developing-country contexts, factors such as informal settlements, inadequate infrastructure, limited financial resources, and dependence

on external emergency services significantly affect the effectiveness of disaster risk reduction initiatives (UN-Habitat, 2020). Furthermore, empirical studies examining the relationship between fire-specific hazard response mechanisms and disaster preparedness at the municipal level remain limited, particularly within Zimbabwean local authorities.

This study therefore seeks to address these gaps by applying DRR theory within the specific context of Norton Town Council. The study examines how existing fire hazard response mechanisms operate in practice, identifies institutional and operational challenges affecting preparedness, and evaluates the extent to which DRR principles are implemented at the local level. By doing so, the study contributes to a more context-specific understanding of disaster preparedness in small urban municipalities and responds to calls by scholars for localized approaches to disaster risk reduction that reflect the unique social, economic, and institutional characteristics of communities (Gaillard & Mercer, 2013; UNDRR, 2015). The findings are expected to provide practical insights for strengthening fire hazard response systems and enhancing disaster preparedness in resource-constrained municipal environments.

2.2.2 Conceptual frame work

This section presents the conceptual framework that guides the study by illustrating the relationship between the key variables under investigation, namely fire hazard response and disaster preparedness. A conceptual framework provides a visual or narrative representation of the concepts being studied and the relationships among them, thereby helping researchers to organize ideas and guide the research process (Miles et al., 2020). Similarly, Maxwell (2013) argues that a conceptual framework assists researchers in identifying key variables, clarifying assumptions, and establishing connections between theory and empirical investigation.

In this study, the conceptual framework provides a structured understanding of how different components of fire hazard response mechanisms influence the level of disaster preparedness within Norton Town Council. The framework identifies key aspects of fire hazard response, including response mechanisms, effectiveness of existing systems, operational challenges, and improvement strategies, and links them to disaster preparedness outcomes such as institutional readiness, community participation, response capacity, and overall resilience. According to UNDRR (2015), effective disaster preparedness depends on the integration of institutional capacity, risk reduction measures, and community engagement, all of which are reflected in the framework adopted for this study.

The conceptual framework is important because it simplifies complex relationships among variables and provides direction for data collection, analysis, and interpretation (Ravitch & Riggan, 2017). It also assists in identifying gaps within existing fire hazard response systems, particularly in relation to infrastructure adequacy, inter-agency coordination, resource availability, and community involvement. Previous studies have highlighted that weaknesses in these areas can undermine disaster preparedness and emergency response effectiveness, especially in resource-constrained municipalities (Gaillard & Mercer, 2013; UN-Habitat, 2020). Consequently, the framework guides the investigation of how fire hazard response mechanisms contribute to disaster preparedness within the context of Norton Town Council.

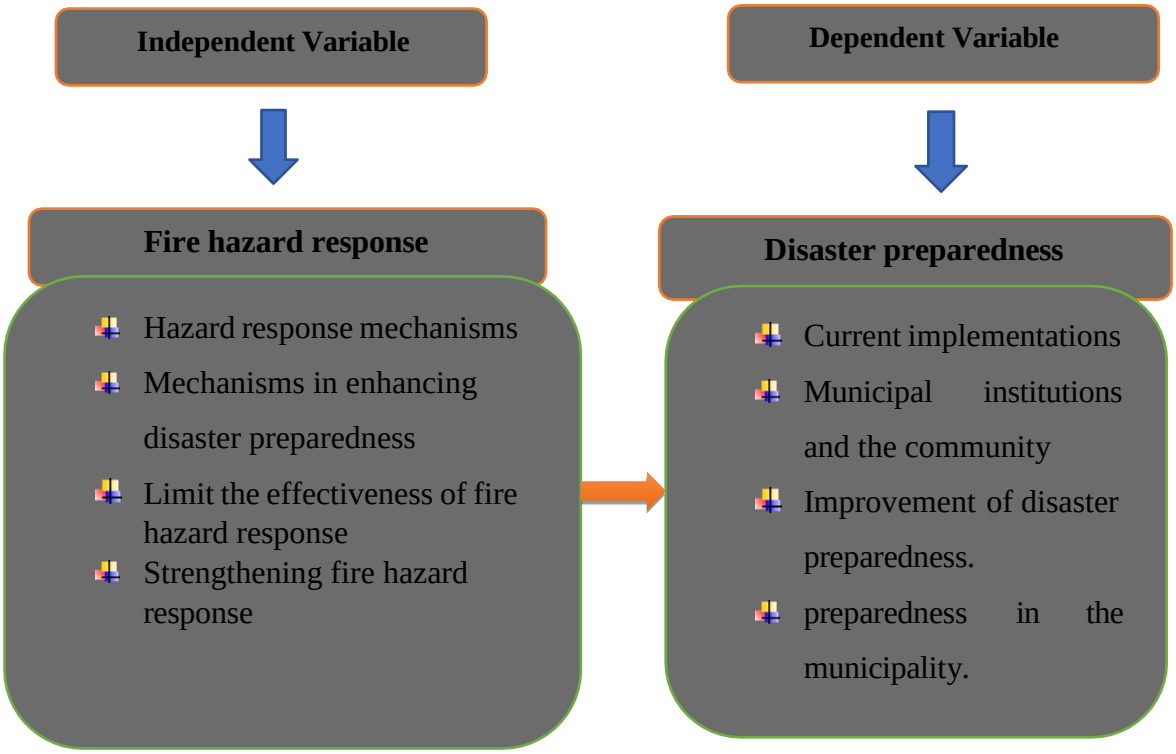


Fig 2.1: Conceptual framework `

The conceptual framework of this study proposes a relationship between fire hazard response as the independent variable and disaster preparedness as the dependent variable within Norton Town Council. A conceptual framework illustrates the presumed relationships among variables and provides a basis for understanding how one variable influences another within a specific research context (Ravitch & Riggan, 2017). In disaster risk reduction literature, effective hazard response mechanisms are considered critical determinants of preparedness because they enhance the ability of institutions and communities to anticipate, respond to, and recover from emergencies (UNDRR, 2015; Wisner et al., 2012).

The framework is associated with the research problem, which emphasizes the fact that Norton Town Council does not have a fully developed system of fire hazard management in the present state, but the fire hazards in the area are on the rise due to the presence of urban development, population growth, and extended commercial activity. Although there are some response mechanisms available such as provision of a fire truck and cooperation with the adjacent municipalities these measures are not enough to ensure prompt and efficient emergency response. Research has also revealed that the slow reactions to emergencies and the reliance on outside fire departments contribute significantly to the minimization of the success of fire prevention and the destruction of property and infrastructure (Mavhura, 2019; Mtani and Mbuya, 2018). Moreover, the efficient fire hazard response involves the equipment, but also, well-trained individuals, the organization of the institutional systems, and effective interaction with the community (Kapucu & Garayev, 2016; Paton and Johnston, 2017). Where these factors are poor or disjointed, there is low level of disaster preparedness and communities are subjected to increased fire hazards.

The conceptual framework thus points out significant flaws in the current system. These are poor firefighting facilities, under trained staff, poor coordination among the municipal bodies and the community and little public awareness and involvement in prevention of fire. The literature of developing countries emphasizes that these gaps are prevalent in municipalities with low resources, and fire hazard response systems are usually reactive, not proactive (Adelekan and Asiyanbi, 2016; Zhou and Chigonda, 2022). But these studies are mostly based on the large urban centres and little is done on small towns like Norton. This generates a contextual vacuum, with the particular dynamics of fire hazard response and emergency preparedness in smaller and medium-sized cities not being well-studied. This paper thus aims at filling these gaps by conducting a detailed evaluation of the fire hazard response mechanisms and its effect on disaster preparedness in the Norton Town Council. These loopholes diminish the power of fire hazard response systems and as a result, undermine disaster preparedness in the municipality.

By analyzing these associations, the research aims at evaluating the impact of the current fire hazard response systems on disaster preparedness within the Norton Town Council. It will also determine the constraints that influence the capacity to respond and present solutions that could empower fire hazard response systems. The study will also seek to fill in these gaps by

providing contributions to enhanced municipal preparedness, emergency response coordination, and protection of lives, property, and the environment against fire hazards.

2.3 Assessing Fire Emergency Infrastructure

This section provides a structured evaluation of the physical and structural assets required to execute emergency fire containment within local authorities. It analyses the specific parameters necessary to satisfy the first objective of this study by isolating and reviewing literature on municipal water reticulation grids, mechanical emergency fleet components, and the telecommunications networks used to process disaster alerts.

2.3.1 Municipal Water Infrastructure and Hydrant Networks

Globally, scholars agree that a functional, pressurised water reticulation grid is the absolute foundation of any municipal fire suppression system. Zhang (2020) posits that high income nations invest heavily in automated, subterranean hydrant networks that maintain consistent static and dynamic water pressure. This allows firefighting teams to secure an immediate, high volume water supply directly at the scene of an incident. This perspective is supported by Oliveira and Delgado (2022), who state that risk based urban planning in developed settings ensures that hydrants are strategically spaced according to building density and fire load classifications, thereby completely eliminating reliance on the onboard tank capacities of responding vehicles.

Regionally, municipal fire brigades face severe operational constraints due to deteriorated, unmapped, or entirely non existent water infrastructure. Mtani and Mbuya (2018) observe that rapid, unplanned urban growth across the African continent frequently outpaces municipal utility expansion, which results in extensive residential and commercial zones that lack dedicated firefighting water connections. Where hydrant networks do exist, Adelekan and Asiyanbi (2016) argue that they are often plagued by low water pressure or a complete lack of supply due to systemic municipal water rationing, forcing emergency teams to operate with dry hydrants during critical fire suppression windows.

Locally, authorities exhibit severe vulnerabilities regarding water infrastructure dedicated to emergency services, failing to meet the basic expectations of the Urban Councils Act [Chapter 29:15]. Mavhura (2019) confirms that Zimbabwean cities and small towns alike struggle with erratic water supply, low reticulation pressure, and vandalised or buried hydrant systems that hinder prompt firefighting intervention. In an infrastructure analysis, Mapwire and Muzenda (2022) point out that in rapidly urbanising environments across local

authorities, municipal fire teams cannot rely on localised water points and are forced to travel back to central depots or distant open water sources to refill vehicle tanks, which prolongs active fire incidents and increases property destruction.

2.3.2 Fire Suppression Equipment and Fleet Adequacy

Globally, the benchmark for municipal fire defence requires a specialised fleet of fire appliances, including structural pumpers, aerial ladder platforms, and rescue tenders, all maintained in an immediate state of operational readiness. Paton and Johnston (2017) show that developed municipalities implement strict lifespans for emergency vehicles and utilise predictive maintenance modelling to ensure that mechanical reliability remains high. Furthermore, modern urban fire authorities rely on personnel equipped with updated personal protective equipment, self contained breathing apparatus, and specialised cutting and extrication tools to facilitate safe, efficient rescue operations (Simpson & Hancock, 2021).

Regionally, the reality across many African local authorities is characterised by acute material shortages and obsolete emergency fleets. Abubakar et al. (2019) report that Southern and Western African municipal fire services frequently rely on single, aging fire tenders that lack specialised multi hazard capabilities, leaving them ill equipped to handle complex chemical, industrial, or high rise incidents. This technological deficit is compounded by broader municipal budget constraints that restrict the procurement of basic operational necessities, meaning that firefighters routinely operate with expired personal protective gear and inadequate foam concentrates for suppressing chemical blazes.

Locally, structural assessments of fire brigades within Zimbabwean municipalities reveal a persistent reliance on outdated, broken down, or donated vehicles that lack compatible spare parts, directly undermining national frameworks like the Civil Protection Act [Chapter 10:06]. Chirisa et al. (2023) demonstrate that local authorities face significant foreign currency shortages that limit their ability to import modern fire engines or maintain existing fleets according to manufacturer specifications. Consequently, Zhou and Chigonda (2022) observe that smaller town councils operate with a depleted physical asset base, where a mechanical breakdown of a single vehicle can completely strip the municipality of its entire fire suppression capability for extended periods.

2.3.3 Emergency Communication and Dispatch Systems

Globally, modern emergency management relies on integrated telecommunications systems, including computer aided dispatch software, geocoded spatial mapping, and multi channel

digital radio networks. Madaio et al. (2016) highlight that these advanced communication structures allow emergency operators to instantly trace incoming distress calls, identify the exact geographic coordinates of an incident, map the fastest transit routes, and simultaneously alert multiple response agencies. This seamless digital coordination minimizes human error and significantly reduces the time between initial alert and vehicle dispatch.

Regionally, emergency communication channels are often fragmented, underfunded, and reliant on obsolete analogue infrastructure. Kapucu and Garayev (2016) state that many local authorities lack centralised emergency numbers, forcing citizens to find and dial direct landline numbers for specific stations during a crisis, which introduces severe delays. Furthermore, field communication between dispatched crews and the central command post is frequently compromised by weak radio signals, a lack of functional mobile units, and a lack of integrated digital platforms to share real time situational data (Petousis & Mitchell, 2019).

Locally, emergency communication systems within smaller and medium sized local government areas remain technically limited and poorly integrated. In an evaluation of municipal governance, Gukurume (2022) finds that citizens in smaller urban centres frequently face difficulties contacting local fire stations due to down telephone lines or network congestion, occasionally forcing individuals to physically travel to the station to report an active fire hazard. Mavhura (2019) adds that the lack of digital dispatch systems and spatial risk mapping software within these town councils means that operators must rely on manual logging methods, which increases errors and slows down emergency mobilisation.

2.4 Evaluating Municipal Hazard Response Mechanisms

This section provides an analysis of the operational realities of active disaster intervention by evaluating how physical assets are deployed in real time crises. It establishes a thematic framework encompassing transit times, adherence to procedural tactics, and the quality of multi agency cooperation during active containment operations, thereby addressing the performance indicators needed to satisfy the second objective of the dissertation.

2.4.1 Operational Response Times and Turnout Efficiency

Globally, emergency response standards emphasise that the period between receiving an emergency alarm and arriving at the incident scene should ideally not exceed five to eight minutes. Paton and Johnston (2017) show that turnout efficiency, which measures the internal time taken by firefighters to don protective clothing and exit the station, is highly optimised

through station design and continuous time drills. Once on the road, Oliveira and Delgado (2022) point out that emergency vehicle priority legislation, automated traffic signal preemption, and clear urban layouts ensure rapid transit to the disaster site.

Regionally, the effectiveness of institutional fire response is severely compromised by prolonged transit times caused by systemic spatial and traffic challenges. Mtani and Mbuya (2018) argue that emergency vehicles must navigate highly congested arterial roads, unpaved or poorly maintained street networks, and vast informal settlements that completely lack accessible thoroughfares or recognisable addresses. These environmental barriers reduce the practical transit speeds of heavy fire appliances, which Adelekan and Asiyanbi (2016) note results in delayed arrivals that allow minor fires to escalate into uncontrollable disasters.

Locally, operational evaluations of Zimbabwean municipal fire brigades indicate that response times consistently exceed acceptable global benchmarks due to weak integration with urban planning policies like the Regional, Town and Country Planning Act [Chapter 29:12]. Chanza and Chirisa (2021) show that rapid, unregulated peri urban growth has created complex mixed use zones that lack proper access routes for large emergency vehicles, causing significant delays during active responses. These logistical barriers are further exacerbated by general motorist behaviors in urban centres, where drivers fail to yield to emergency sirens due to a lack of traffic law enforcement, meaning that municipal teams often arrive only after the affected structures have been completely destroyed (Zhou & Chigonda, 2022).

2.4.2 Standard Operating Procedures and Tactical Fire Suppression

Globally, high income settings govern all fire suppression operations through rigid, evidence based standard operating procedures and a formalised Incident Command System. Simpson and Hancock (2021) argue that these operational protocols clearly define lines of authority, safety zones, tactical positioning for defensive or offensive attacks, and specific ventilation procedures to control toxic smoke and heat. Adherence to these standardised operational guidelines ensures maximal suppression efficiency while mitigating the physical risks faced by the responding emergency personnel.

Regionally, tactical fire suppression is frequently hindered by a lack of modernised operational protocols and an inability to implement structured incident command systems on the scene. Wisner et al. (2020) observe that due to irregular training intervals and fluid command structures, emergency operations can become disorganized, leading to tactical

errors such as improper placement of hose lines or unsafe building entry strategies. This perspective is reinforced by Abubakar et al. (2019), who state that a lack of operational structure reduces suppression efficiency and increases the vulnerability of both properties and firefighters.

Locally, empirical studies highlight that while formal fire brigade hierarchies exist, active suppression maneuvers are frequently compromised by operational confusion. Mapwire and Muzenda (2022) demonstrate that firefighters often have to adapt their tactics reactively on the scene due to unexpected infrastructure failures, such as sudden drops in water pressure or malfunctioning vehicle pumps. This operational unpredictability is supported by Mavhura (2019), who shows that such systemic failures undermine the execution of standard operating procedures, shifting the intervention from a controlled tactical operation to an ad hoc containment effort.

2.4.3 Multi-Agency Coordination and Mutual Aid Agreements

Globally, effective disaster response is structurally dependent on robust multi agency coordination frameworks that link municipal fire services with external entities such as police forces, medical teams, water utilities, and national civil protection agencies. Kapucu and Garayev (2016) argue that these interactions are formalised through legally binding mutual aid agreements, which allow neighbouring municipalities to automatically cross administrative borders to assist during large scale emergencies. This argument is extended by Zhang (2020), who notes that joint multi agency simulation exercises are conducted regularly to test communication compatibility and unified command structures.

Regionally, institutional fire responses are often isolated from broader disaster management networks due to weak coordination mechanisms and fragmented administrative silos. Kganyago and Mtingi (2020) show that when major fire emergencies occur, communication gaps between the fire brigade, utility providers, and law enforcement agencies lead to disorganised scenes where crowd control is non existent. Furthermore, modern studies argue that formal cross border mutual aid is rare in secondary sub-Saharan towns, meaning that resource constrained small municipalities must battle major blazes entirely alone without external municipal support (Wisner et al., 2020).

Locally, despite the overarching legislative mandate provided by the Civil Protection Act [Chapter 10:06], the actual implementation of multi agency coordination at the local authority level remains highly inconsistent. Mavhura (2019) notes that inter organisational

communication gaps frequently delay the mobilisation of auxiliary support, meaning that the fire service, national police, and electrical utility providers often operate independently at disaster scenes without a unified objective. This institutional gap is highlighted by Chirisa et al. (2023), who state that smaller, rapidly growing town councils rarely possess functional mutual aid agreements with larger adjacent cities, leaving them vulnerable when local fire emergencies exceed their internal suppression capacities.

2.5 Examining Disaster Preparedness Levels

This section provides an analysis of literature concerning long term institutional and social readiness within municipal emergency management. It evaluates the predictive and preventative dimensions of disaster planning by focusing on the thematic subheadings of municipal financial allocations for capacity maintenance, public risk reduction programs, and the strength of the local regulatory environment, thereby fulfilling the requirements of the final research objective.

2.5.1 Institutional Budgeting, Staff Training, and Capacity Building

Globally, disaster preparedness is sustained through consistent, risk informed municipal budgetary allocations specifically earmarked for long term capacity building. Aitsi-Selmi and Murray (2016) point out that these financial resources fund continuous professional development, advanced technical certifications in hazardous materials response, and regular large scale disaster simulations. This proactive financial commitment ensures that institutional memory is preserved and operational skills remain sharp, which UNDRR (2020) argues allows the emergency department to scale alongside urban growth.

Regionally, municipal budgets heavily favour immediate, short term administrative expenditures over long term disaster preparedness and capacity building. Musemwa (2024) establishes that fire departments are systematically underfunded, which restricts the recruitment of young personnel, limits the frequency of advanced technical training workshops, and prevents the execution of realistic emergency simulation exercises. This structural issue is supported by Wahlström (2021), who argues that institutional capacity consequently degrades, forcing emergency services to operate in a perpetually reactive state with understaffed, under trained crews.

Locally, empirical literature confirms that municipal fire brigades are severely constrained by inadequate budgetary support from parent local authorities. Mavhura (2019) highlights that fiscal deficits mean municipal firefighters rarely receive continuous professional training or

exposure to contemporary international firefighting techniques after their initial recruitment. This lack of institutional capacity building is supported by Gukurume (2022), who states that underfunding undermines long term readiness, leaving personnel ill prepared to assess, map, or proactively mitigate complex modern fire risks within their changing jurisdictions.

2.5.2 Community-Based Disaster Risk Reduction and Public Awareness

Globally, disaster risk reduction frameworks heavily emphasise that community based risk reduction is a critical component of overall disaster preparedness. Aitsi-Selmi and Murray (2016) state that developed municipalities actively foster public resilience through mandatory fire drills in schools, routine safety inspections of commercial marketplaces, and widespread community education programs regarding emergency evacuation and basic fire suppression. These strategies ensure that citizens can act as competent first responders, which Santiago-Gómez and Rodríguez-Rodríguez (2023) note is crucial during the critical initial phases of a fire incident.

Regionally, institutional fire prevention programs are poorly developed, leaving local populations with low baseline awareness of fire hazards. Adelekan and Asiyanbi (2016) argue that socio-economic vulnerabilities, such as a reliance on highly flammable domestic energy sources like paraffin and charcoal, combined with high density housing, drastically elevate community risk profiles. While some communities develop informal, ad hoc response mechanisms to combat fires, researchers counter that these grassroots efforts are rarely integrated into formal municipal emergency plans, which limits their long term effectiveness (Mucherera & Mavhura, 2020).

Locally, public participation in municipal fire preparedness initiatives remains extremely low, particularly within smaller and rapidly urbanising town councils. Zhou and Chigonda (2022) find that local residents are generally unaware of municipal fire prevention policies, rarely participate in formal evacuation drills, and possess limited access to functional domestic fire protection tools like extinguishers or smoke alarms. This lack of community based risk reduction is reinforced by Mavhura (2019), who shows that public reactions to fire incidents are often marked by panic and counterproductive behaviours that can hinder arriving emergency crews.

2.5.3 Legislative Frameworks and Enforcement of Fire By-laws

Globally, the legal foundation of disaster preparedness rests upon the strict enforcement of comprehensive building codes, electrical safety regulations, and localised fire prevention by

laws. Zhang (2020) points out that municipal authorities in developed nations retain extensive legal powers to conduct routine, unannounced code enforcement inspections of all commercial, industrial, and multi family residential structures. This perspective is extended by Ainuddin and Routray (2015), who argue that strict compliance enforcement, backed by severe financial penalties or criminal prosecution, maintains high levels of systemic fire safety.

Regionally, the primary challenge hindering fire preparedness is not a total absence of safety legislation, but rather the highly inconsistent enforcement of existing regulations. Wisner et al. (2020) state that municipal planning departments and inspection units are frequently compromised by limited personnel, low technical capacity, and administrative weaknesses, allowing sub standard, fire prone structures to proliferate without penalty. This argument is supported by Wahlström (2021), who concludes that the failure to enforce basic building codes creates highly vulnerable urban environments where major fire outbreaks become inevitable.

Locally, the Civil Protection Act [Chapter 10:06] provides a clear national legal blueprint for disaster management, but its practical implementation and localisation via municipal by laws remain weak. Zhou and Chigonda (2022) show that smaller urban and peri urban authorities frequently fail to conduct routine fire safety inspections of rapidly expanding industrial zones and informal marketplaces due to severe staff shortages and administrative oversights. This regulatory gap is confirmed by Maramura and Masiya (2023), who state that lax regulatory enforcement allows business operators to ignore basic fire safety mandates, such as the maintenance of clear emergency exits and internal hose reels required under instruments like the Harare (Fire) (Amendment) By-laws, 2019 (SI 119 of 2019), which increases institutional vulnerability to catastrophic fire events.

2.6 Identification of Gaps

Despite an abundance of regional and global literature detailing the macro-level architectures of disaster risk governance, a significant empirical and contextual gap persists regarding the practical operational realities faced by rapidly expanding secondary local authorities, specifically within the jurisdiction of the Norton Town Council. While existing scholarship extensively critiques the overarching, top-down command structures of national frameworks like the Civil Protection Act [Chapter 10:06], there remains a distinct shortage of localized, town-specific studies evaluating how smaller councils translate these federal mandates into

enforceable municipal instruments. This research intends to bridge this distinct legislative bottleneck by assessing the friction between the Norton Town Council (Environmental Management) By-laws, 2019 (SI 237 of 2019) and the town's actual administrative capacity to enforce code compliance within a shifting socio-economic landscape. Furthermore, current literature frequently treats municipal utility failures and emergency dispatch performance as separate thematic issues, thereby overlooking the direct, real-time operational link between erratic local water reticulation pressures and the turnout efficiency of a resource-constrained fire brigade. By investigating these intersecting infrastructure deficits alongside an assessment of baseline public safety literacy across Norton's newly established residential and peri-urban developments, this study directly bridges the gap between theoretical disaster management policies and grassroots municipal readiness.

2.7 Chapter Summary

This chapter systematically evaluated the operational and structural parameters of municipal fire emergency management by analysing the physical condition of local fire infrastructure, water reticulation grids, and telecommunications dispatch networks. It provided a critical assessment of real-time hazard response mechanisms, specifically unpacking the systemic factors that influence operational turnout efficiency, standard tactical suppression procedures, and multi-agency coordination under the Civil Protection Act [Chapter 10:06]. Furthermore, the chapter reviewed long-term disaster preparedness levels by examining institutional budget allocations, community-based risk reduction initiatives, and the localised enforcement of regulatory tools like the Norton Town Council (Environmental Management) By-laws, 2019 (SI 237 of 2019). Finally, by contrasting global, regional, and local paradigms, this review identified critical research gaps concerning how smaller, resource-constrained secondary town councils handle infrastructure deficits and public safety compliance, thereby establishing the direct empirical foundation and contextual justification for the field investigation that follows.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the research methodology used to investigate the effectiveness of fire hazard response in enhancing disaster preparedness in Norton Town Council. It explains the overall research approach adopted for the study, including the research design, methods of data collection, sampling procedures, and techniques of data analysis. The chapter also discusses issues of validity, reliability, and ethical considerations to ensure that the study is conducted rigorously and produces credible findings. In addition, the chapter provides a justification for the chosen methodological approaches, demonstrating their suitability in addressing the research objectives and questions. By detailing the procedures followed in collecting and analysing data, this chapter establishes the foundation for understanding how the study was conducted and how the findings were generated

3.2 Description of the Study Area

Norton Town is a medium-sized urban centre situated in Mashonaland West Province, Zimbabwe, approximately 40 kilometres southwest of Harare along the Harare–Bulawayo highway. The town has a population estimated at 100,000 residents (ZIMSTAT, 2022) and exhibits a mix of residential, commercial, and industrial areas. Norton has experienced rapid urbanization in recent years, characterized by the expansion of informal settlements, increased residential density, and growth in small-scale industries. The town is governed by the Norton Town Council, which is mandated to provide municipal services, including water, sanitation, and fire hazard management. The municipal fire brigade is responsible for fire prevention, emergency response, community awareness programs, and enforcement of fire safety regulations. Despite the presence of formal fire services, Norton has recorded multiple fire incidents affecting both residential and industrial areas. Such events underscore the need to systematically examine the effectiveness of municipal fire hazard response in enhancing disaster preparedness. The study area's urban layout presents challenges common to small and mid-sized towns in Zimbabwe: congested streets, limited access to hydrants in informal settlements, and uneven distribution of fire services. A detailed map of Norton Town illustrates key features relevant to fire hazard management, including the locations of the fire station, hydrants, residential zones, and commercial areas. This spatial representation aids in understanding the accessibility, risk distribution, and operational challenges faced by municipal fire services.

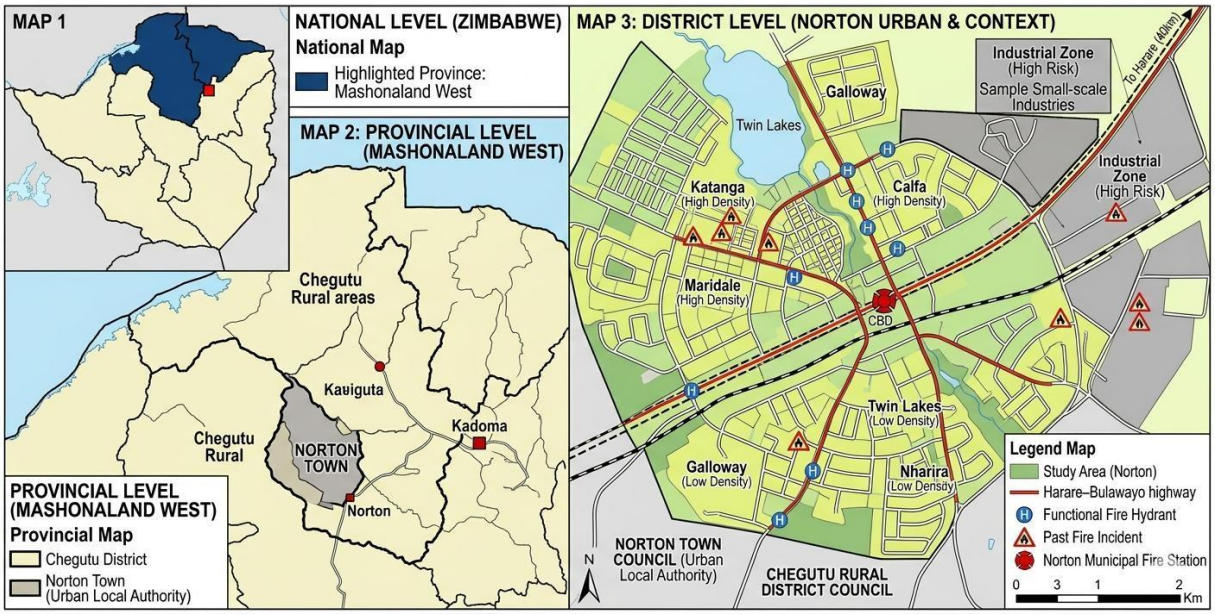


Fig 3.1: Description of the Study Area

Source: World Bank

3.3 Research Design

This study adopted a concurrent nested mixed-methods research design (Creswell and Creswell, 2018), focusing on the Norton Town Council as the single-case unit of analysis. In this design, both qualitative and quantitative data were collected at the same time during a single fieldwork phase. However, one method was dominant and acted as the main framework, while the other smaller method was nested, or embedded, inside it to support the findings. For this investigation, the dominant approach was qualitative, which focused on understanding the institutional structures, policies, and operational bottlenecks within the local authority. Nested inside this main framework was a secondary quantitative approach, which used numerical surveys to gather statistical data directly from local households regarding their fire safety compliance and utility access.

This specific design has been widely used by researchers examining municipal governance and disaster risk management across Southern Africa. For instance, similar concurrent nested frameworks were successfully utilized by Mavhura (2020) to assess rural flood vulnerabilities in the Mbire District, and by Zhou and Chigonda (2022) to evaluate community fire preparedness in secondary Zimbabwean cities. These studies demonstrated that institutional

response capacities cannot be fully understood without embedding real-time grassroots data directly into the broader administrative case study.

The primary strength of this design is that it allows for robust data triangulation within a short timeframe, as different data types are gathered simultaneously to gain a complete picture of the research problem. It balances the deep, contextual insights of qualitative interviews with the broad, measurable trends provided by quantitative statistics. However, a key limitation of the concurrent nested design is that unequal weights are given to the two sets of data, which can make integration difficult if the survey numbers contradict the interview findings. Additionally, focusing on a single local authority limits the statistical generalisability of the findings to a national scale.

Despite these limitations, this design was chosen because the primary goal of the study was to gain a deep, multi-layered understanding of Norton's specific local challenges rather than to make broad statistical claims about the entire country. The nested approach is highly practical for resource-constrained research, as it provides the exact empirical depth needed to show how municipal infrastructure deficits directly impact the daily safety of residents living within the town's expanding residential borders.

3.4 Target Population

The target population for this study was physically located within the administrative and geographical boundaries of the Norton Town Council area, focusing specifically on individuals embedded within both the municipal structures and the surrounding local communities. Within this geographical setting, the study targeted two distinct groups: municipal personnel and local residents, thereby capturing both institutional and grassroots perspectives on fire disaster management. The targeted municipal personnel included frontline fire brigade officers responsible for active firefighting operations, civil protection personnel tasked with coordinating disaster risk reduction programs, and senior town council officials responsible for policy enforcement and budgetary resource allocations. Concurrently, the targeted community residents comprised households drawn from both established formal neighborhoods and rapidly expanding informal settlements across Norton. This specific resident population was targeted to evaluate baseline public safety literacy, risk perceptions, and localised variations in access to municipal water grids, ensuring that the study gathered data directly from the institutional providers of emergency services as well as the local citizens who are most vulnerable to fire hazards.

3.5 Sample Size

To ensure the study remained practical and logistically feasible within the constraints of an undergraduate research project, the sample size was split into two distinct sampling streams. These streams consisted of a rule of thumb quantitative sample for local households and a saturation driven qualitative sample for municipal key informants.

For the nested quantitative strand targeting community residents, a complex statistical formula was discarded in favour of a widely accepted methodological rule of thumb for descriptive survey research. Scholar Roscoe (1975) establishes that for most descriptive studies, sample sizes ranging between 100 and 500 participants are statistically robust enough to provide meaningful trend analysis while remaining logistically manageable for a solo researcher. Backed by the Zimbabwe National Statistics Agency (ZIMSTAT) 2022 Population and Housing Census, which notes that Norton has a total population of 87,038 across 21,957 households, this study adopted a sample size of exactly 100 households for the survey questionnaires. This sample of 100 households was distributed across Norton's formal and informal residential settlements to capture a diverse cross section of local water utility access, risk perceptions, and fire vulnerability.

Concurrently, for the dominant qualitative strand targeting municipal personnel, a fixed mathematical sample size was rejected. Instead, the sample size for institutional key informants, including frontline fire brigade officers, civil protection coordinators, and senior town council officials, was determined purely by the principle of data saturation (Guest, Bunce, and Johnson, 2006). Face to face qualitative interviews with municipal staff were continuously conducted until the collection of operational data yielded no new administrative insights, repetitive themes regarding infrastructure deficits began to recur, and the conceptual boundaries of Norton's fire hazard bottlenecks were fully understood.

3.6 Sampling Techniques

This study employed two distinct sampling techniques to select participants from the target population. This approach separate sampling methods for the dominant qualitative strand and the nested quantitative strand.

For the dominant qualitative strand involving municipal personnel, purposive sampling was applied. Purposive sampling is a non probability sampling technique where the researcher selects participants based entirely on their specific attributes, professional roles, and operational expertise regarding the research topic (Creswell and Creswell, 2018). This

technique was highly appropriate for selecting key informants within the Norton Town Council. By targeting individuals based on their specific job descriptions, the researcher explicitly selected frontline fire brigade officers, civil protection personnel, and town council officials. This methodology ensured that the chosen participants possessed the necessary institutional memory, tactical knowledge, and administrative experience to provide deep insights into municipal resource constraints, policy bottlenecks, and operational challenges.

For the quantitative strand involving community residents, stratified random sampling was utilized. Stratified random sampling is a probability sampling method where the target population is divided into distinct subgroups, known as strata, based on shared characteristics, and random samples are then drawn from each subgroup. In this study, the population was stratified into two distinct residential sectors: formal neighborhoods and informal settlements. This stratification was necessary because formal and informal areas differ significantly in their exposure to fire hazards, architectural structures, and levels of access to municipal water grids. Once the two strata were established, simple random sampling was used to select households within each sector until a total sample size of 100 respondents was achieved. This randomized approach ensured that every household within the selected residential zones had an equal chance of selection, thereby reducing researcher bias and ensuring that the survey data accurately reflected broader statistical trends across the municipality.

3.7 Data Collection Instruments

To gather empirical evidence from both the institutional and grassroots levels, two distinct research instruments were deployed during the fieldwork phase. These tools consisted of a structured survey questionnaire for community residents and a semi structured interview guide for municipal personnel.

1.7.1 3.7.1 Structured Questionnaire

The structured survey questionnaire was used to gather standardised, quantifiable data regarding public fire safety literacy, household disaster readiness, and local access to water utilities. The researcher personally distributed 100 printed questionnaires to household heads across Norton's formal and informal residential settlements. Out of the 100 questionnaires distributed, exactly 91 completed questionnaires were successfully returned and validated, resulting in a highly acceptable response rate of 91 per cent for the nested quantitative strand. The questionnaire utilised closed ended questions and Likert scale items, which made it

highly efficient for respondents to complete and allowed the researcher to convert the grassroots feedback into clean percentages and descriptive statistics to identify broader public trends. Methodological literature defines a structured questionnaire as a formal research instrument consisting of a standardised set of questions designed to gather uniform, statistically analysable data from a specific target group (Saunders et al., 2019).

3.7.2 Semi Structured Interview Guide

The semi structured interview guide was used to conduct face to face, one to one qualitative sessions with professional key informants within the local authority to understand municipal infrastructure capacity and policy bottlenecks. This instrument was applied flexibly, allowing the researcher to ask open ended probing questions to uncover deep institutional insights that standard surveys cannot capture. A total of 12 municipal officials participated in these interviews before data saturation was successfully reached. These 12 participants included 5 frontline fire brigade officers, 3 civil protection coordinators, and 4 senior town council administrative officials. Fieldwork interviews were stopped after the twelfth participant because the operational responses became repetitive, no new insights or organisational themes emerged, and the conceptual boundaries of Norton's institutional fire response challenges were fully understood. Academic texts define a semi structured interview guide as a qualitative framework that outlines core topics and open ended questions to ensure thematic consistency while granting the researcher the freedom to probe deeper into individual responses (Creswell & Creswell, 2018).

3.8 Data Analysis Methods

To align with the concurrent nested mixed methods framework, two distinct data analysis methods were used to process the collected field data. Quantitative data from the household surveys were processed using descriptive statistics, while qualitative data from the key informant interviews were processed using thematic analysis.

3.8.1 Quantitative Data Analysis

The numerical data gathered from the 91 completed household questionnaires were analysed using descriptive statistics. Descriptive statistical analysis is a method used to summarise, organise, and present numerical data patterns in a clear and meaningful way (Ali & Bhaskar, 2016). All completed questionnaires were coded and entered into Microsoft Excel for data processing. The analysis focused on generating simple frequencies and percentages to describe the characteristics of the respondents. These calculations were used to illustrate patterns regarding public fire safety literacy, household disaster readiness levels, and

variations in water utility access between formal and informal residential settlements. The final descriptive statistics generated by Microsoft Excel were presented visually using simple tables and charts within the findings chapter.

3.8.2 Qualitative Data Analysis

The textual data collected from the 12 semi structured key informant interviews were analysed using thematic analysis. Thematic analysis is a qualitative method used to identify, analyse, and report recurring patterns or themes across a textual dataset (Braun & Clarke, 2012). The qualitative analysis followed a structured six phase approach to ensure academic rigor. The process began with the researcher transcribing all interview audio recordings verbatim to ensure the authentic voices of the municipal officials were preserved. The researcher then read and re read the transcripts to achieve familiarisation with the data. Initial codes were generated by labelling meaningful segments of text relating to resource limitations, administrative challenges, and institutional coordination. These initial codes were clustered together to form broader overarching themes that directly addressed the core research objectives. These themes included local fire hazard response mechanisms, the effectiveness of municipal preparedness, institutional challenges, and strategic improvement paths. Finally, these themes were interpreted alongside empirical literature and the chosen theoretical frameworks to complete the qualitative analysis.

3.9 Validity and Reliability

To ensure the academic integrity of the study, specific measures were implemented to guarantee the quality of both the quantitative and qualitative data.

For the nested quantitative strand, the focus was placed on the reliability and validity of the survey questionnaire. Validity refers to how accurately a research instrument measures the specific concepts it was designed to evaluate (Bolarinwa, 2015). To establish strong content validity, the survey questions were directly derived from the study objectives and were strictly reviewed by the university research supervisor before data collection commenced. This expert review ensured the questions were clear and free from ambiguity. The instruments were then pre tested during a pilot study with five residents who were not part of the final sample. Reliability refers to the consistency and stability of a research instrument over time (Bolarinwa, 2015). The structured layout and closed ended nature of the questionnaire ensured that data collection remained uniform across all 91 successful respondents.

For the dominant qualitative strand, validity and reliability were replaced by the concept of trustworthiness, which includes credibility and dependability (Noble & Smith, 2015). Credibility was achieved by transcribing the audio recordings of the 12 municipal interviews verbatim to prevent any personal interpretation bias by the researcher. The university research supervisor also reviewed the interview guides and the qualitative methodology beforehand to ensure they were academically sound. Dependability was maintained by keeping a clear audit trail of all raw audio files, interview transcripts, and initial coding lists, which could be verified by independent academic examiners.

3.10 Data Presentation

Data presentation outlines the systematic manner in which the processed field findings are structured and displayed to answer the research questions (Ali & Bhaskar, 2016). For the quantitative data, Microsoft Excel was used to convert the raw numerical entries from the 91 household questionnaires into descriptive statistical outputs. These outputs were presented visually using simple tables, bar charts, and pie charts accompanied by brief descriptive narratives. For the qualitative data, the findings from the 12 thematic interviews were presented using direct narrative quotes alongside a conceptual breakdown of the recurring themes. The quantitative figures and qualitative descriptions were integrated side by side within the findings chapter to provide a complete picture of the fire response challenges in Norton.

3.11 Ethical Considerations

Ethical considerations in research involve protecting the rights, safety, and dignity of all human participants involved in a study (Arifin, 2018). Before entering the field, the researcher obtained an official introductory institutional approval letter from Bindura University of Science Education. This approval letter was then used to seek administrative clearance from the Norton Town Council authorities to conduct fieldwork legally.

Participation in both the household surveys and municipal interviews was entirely voluntary. Every respondent was given an information sheet explaining the academic purpose of the study, and informed consent was obtained from each individual before data collection commenced. To maintain strict confidentiality and anonymity, no personal names, household addresses, or specific staff designations were recorded on the questionnaires or transcripts. Instead, alphanumeric codes were assigned to all participants. Finally, all digital field data,

including Microsoft Excel files and audio recordings, were secured using password protection, and the physical questionnaires were stored safely to prevent unauthorised access.

3.12 Chapter conclusion

This chapter described the approach adopted to study the impact of fire hazard response on disaster preparedness in Norton Town Council. This chapter outlines the research area, design, sample size, sampling, data collection instruments, data analysis, data validity and reliability, data presentation and ethical consideration of the study. The choice of mixed methods approach enabled the study to gain insight into institutional and community responses with statistical calculations. Semi-structured interviews and questionnaires were used to gather data, complemented by purposive and stratified sampling for targeted and representative participation. The chapter highlighted several key issues including the need to identify experts, the use of multiple data collection approaches to promote validity, and the use of thematic analysis to interpret data. The chapter also discussed potential biases (subjectivity) and access restrictions, and strategies such as triangulation and sensitive data management to counteract these. In summary, the method offers a sound approach to produce valid and credible results on the fire hazard response and disaster preparedness of Norton Town Council.

CHAPTER 4: DATA PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter focuses on the presentation, interpretation and analysis of the research data gathered from the field in Norton. It lays out the quantitative findings collected from the community questionnaires alongside the qualitative insights from the municipal key informant interviews. The presentation is organised sequentially, starting with the response rates and participant demographics, followed by a themed breakdown of the findings, and concluding with a detailed discussion that links the field data back to existing literature.

4.2 Response Rate

This section evaluates the success of the fieldwork by tracking how many planned community participants were reached and detailing how the institutional interviews were concluded.

Table 4.1: Response Rate by Research Instrument

Research Instrument	**Target Sample**	**Achieved Sample**	**Response Rate (%)**
Community Questionnaire	100	91	91
Key Informant Interview Guide	Data Saturation	12	Achieved

[Source: Primary Data]

The data shows that the community survey achieved a near-perfect return rate. Having such a large proportion of questionnaires filled out and returned means that the field data was highly representative of the broader public sentiment in Norton. It reduces the risk of non-response bias, giving the study a solid, credible foundation for statistical analysis. For the institutional interviews, the field process relied entirely on the principle of data saturation rather than a rigid numeric target. By continuing the deep-dive discussions until the information, organisational complaints, and operational insights began repeating themselves, the researcher ensured that the qualitative findings were completely exhausted. Reaching this point after a dozen interviews guarantees that the institutional challenges highlighted in this chapter are genuinely systemic across the local authority's departments.

4.3 Demographic Characteristics

This section presented the demographic and spatial backgrounds of the 91 community respondents who participated in the survey. Understanding these characteristics helps contextualise the differences in fire hazard vulnerabilities and risk literacy across the town.

Table 4.2: Demographic Characteristics of Participants

Demographic Variable	**Category**	**Frequency (N=91)**	**Percentage (%)**
Residential Area	Formal Residential	40	44
	Informal	51	56
Gender	Male	38	42
	Female	53	58
Length of Residency	Less than 2 years	19	30
	2 to 5 years	30	33
	More than 5 years	42	46

[Source: Primary Data]

The geographic distribution shows that a larger proportion of the respondents live in informal or newly established peri-urban areas compared to the older, formal suburbs of the town. This split is critical for the study because informal and formal areas feature completely different infrastructural layouts, road networks, and building materials, which directly impacts how vulnerable a household is to fire hazards. In terms of gender, female respondents made up the majority of the sample. In local residential areas, women are often the ones managing daily domestic activities, handling cooking utilities, and supervising households during the day. This makes their perspectives highly valuable, as they are usually the first to interact with or respond to domestic fire hazards like gas leaks or candle accidents.

The residency data shows that nearly half of the participants have lived in Norton for more than five years, followed by those with medium-term residency. Having a population dominated by long-term residents means that the majority of the respondents have a deep, historical understanding of the town's water supply trends, past fire incidents, and the overall performance of the local council over time.

4.4 Operational Capacity and Infrastructure of Fire Emergency Services

This section focuses on the presentation and interpretation of data gathered from the field regarding the physical and structural assets available within Norton for emergency fire containment. It contrasts the local community's evaluation of their immediate neighborhood infrastructure with the technical and administrative realities experienced by the local authority's staff.

4.4.1 Municipal Water Infrastructure and Hydrant Networks

This section evaluates the state of the foundational water infrastructure required to support active fire suppression. The analysis focuses specifically on municipal reticulation reliability, the availability of operational hydrants, and localised water pressure.

To gauge the baseline availability of daily water utilities and how this access impacts emergency fire defense, the survey first captured the community's primary water sources. These findings are presented in Figure 4.1.

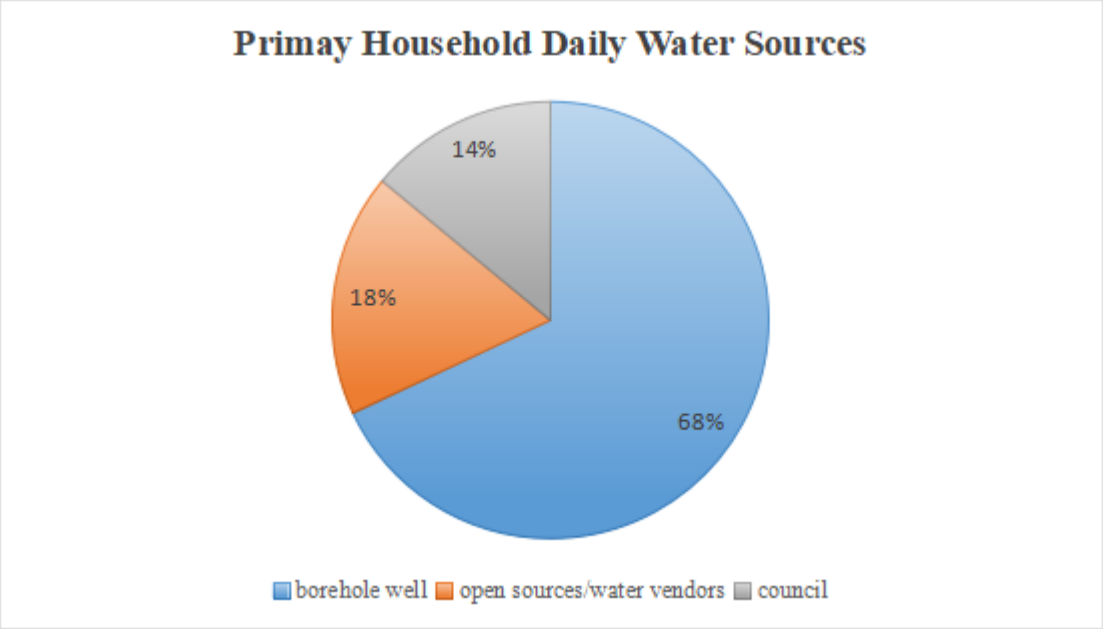


Figure 4.1: Household Primary Daily Water Sources (N=91) [Source: Primary Data]

To complement these water source findings, residents were asked to rate the physical presence of working hydrants and the strength of the localised water pressure in their neighborhoods. Their evaluations are compiled in Table 4.3.

Table 4.3: Community Assessment of Local Hydrants and Water Pressure

Statement	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)	Strongly Disagree (%)
I can see working fire hydrants near my home.	0	4	11	32	53
The water pressure in my area is strong enough to put out a fire.	2	7	15	34	42

[Source: Primary Data]

The survey data demonstrates a near-total collapse of dedicated fire-suppression water infrastructure across the town's residential zones. The overwhelming rejection of the statement regarding visible fire hydrants reveals that hydrants are either completely absent or have been rendered obsolete by physical neglect and rapid urban expansion. This is deeply linked to the fact that the vast majority of households rely on community boreholes or shallow wells for daily survival rather than direct municipal connections. Because the centralised water reticulation grid has been sidelined by localised groundwater options, the infrastructure needed to feed emergency water networks has practically disappeared. Furthermore, the strong consensus regarding low water pressure indicates that even in the few areas where reticulation lines exist, the flow rate is structurally incapable of supporting active firefighting operations, making it impossible to run high-volume suppression directly from local mains.

The administrative and field interviews with council officials confirmed these infrastructural deficits, with participants explaining how the broader water crisis in Norton directly cripples the technical operations of the fire department. During the interviews, a senior operational officer explained the structural issues within the municipal grid:

> *'...our centralised reticulation is practically dead in most new zones and the old hydrants in the town center are either buried under road expansions or completely disconnected from the main lines due to low pressure.'*

Another key informant from the engineering department highlighted the dependency on external water supply points:

'...we are forced to treat the entire town as a dry zone which means the fire truck must always travel back to the main water works or look for open rivers outside town just to refill its tank during a major breakout.'

This reveals that Norton's fire emergency response is fundamentally undermined by a severe water infrastructure crisis. These findings show that the town council is currently failing to maintain the basic public safety expectations outlined in the Urban Councils Act [Chapter 29:15].

When a hydrant network is non-functional and water pressure is chronically low, the fire brigade loses its primary tactical advantage: an immediate, continuous water supply at the scene of an incident. Instead of utilising local infrastructure, the emergency crew is forced to operate purely on the limited tank capacity of their responding vehicle. Once that onboard water is exhausted within the opening minutes of a blaze, the operation is put on hold while the truck takes long trips to distant central depots or open water bodies to refill. This structural flaw answers the first objective by showing that the town's physical fire emergency infrastructure is severely compromised, directly leading to prolonged fire incidents and increased property destruction across both formal and informal settlements.

4.4.2 Fire Suppression Equipment and Fleet Adequacy

This section examines the mechanical condition, availability, and multi-hazard capabilities of the specialised fire appliances and protective gear managed by the local authority.

To understand public sentiment regarding the physical capacity of the arriving fleet during a crisis, respondents were asked to rate whether the responding vehicles arrive equipped with sufficient water resources. These perceptions are displayed in Figure 4.2.

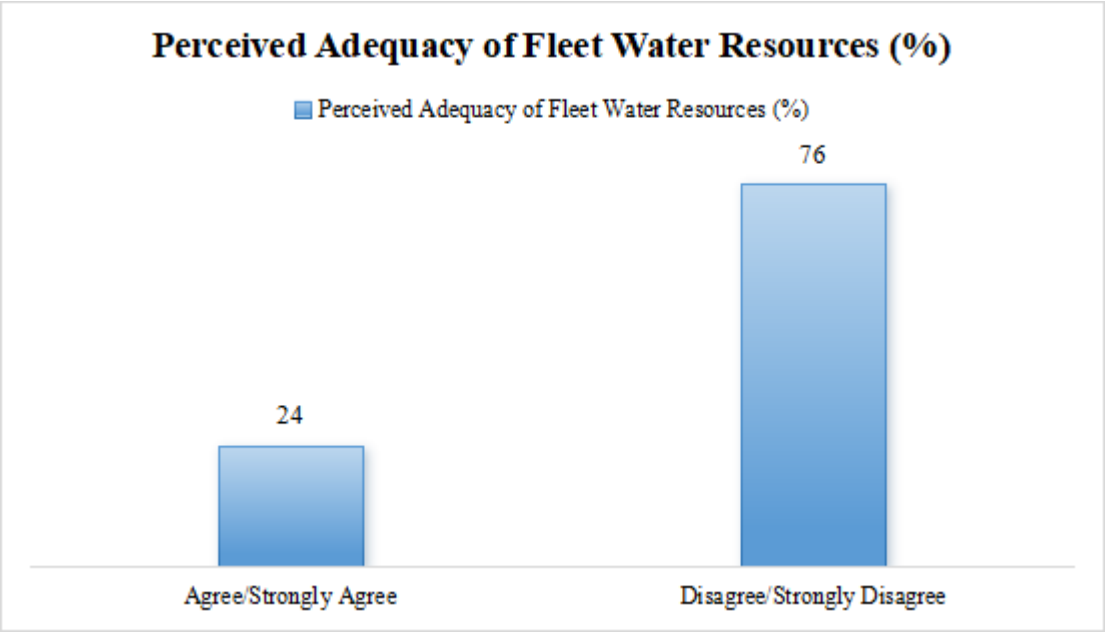


Figure 4.2: Public Perceptions on Fire Truck Water Resource Adequacy (N=91) [Source: Primary Data]

The data collected on public perceptions of fleet performance shows a widespread lack of confidence in the mechanical and resource capacity of the arriving emergency vehicles. The strong community consensus that fire trucks arrive with insufficient water reflects a deep frustration with the operational realities witnessed during local disasters. Rather than indicating that crews are intentionally driving empty vehicles to fire scenes, this widespread perception highlights the immediate operational depletion of small vehicle water tanks when faced with fully developed structural blazes. Because the public does not see a continuous, successful offensive attack on the fire, they naturally conclude that the arriving apparatus is ill-equipped and under-resourced to handle local emergencies.

The qualitative interviews with the fire brigade staff clarified these mechanical limitations, revealing an emergency department operating with severely depleted assets. A frontline emergency responder described the state of the active fleet during an interview:

> *'...we are running our operations with a single aging structural pumper that frequently breaks down and we do not have specialised vehicles like aerial ladders for high-rise buildings or heavy-duty rescue tenders.'*

An administrative official in the procurement section highlighted the challenges regarding specialised maintenance:

'...most of our tools and vehicles were acquired through international donations which means that whenever a pump or a hydraulic rescue tool breaks down we struggle to have compatible spare parts and if we do it takes time because the manufactures will manufacture the needed part when we order it, they don not usually have them.'

The field data indicates that Norton's mechanical fire defence system is highly vulnerable and lacks any operational redundancy. Operating a municipal fire service with only one functional, aging fire engine directly violates national safety principles, particularly the Civil Protection Act [Chapter 10:06], which demands a constant state of operational readiness.

This asset scarcity means that if a mechanical failure occurs during an active response, or if two distinct fire outbreaks happen at the same time in different parts of the town, the local authority completely loses its containment capabilities. Furthermore, the reliance on older, donated machinery without a reliable supply chain for spare parts creates a situation where minor mechanical wear can ground the town's entire fire defense for weeks. This evidence answers the first objective by proving that the town's emergency fleet and suppression equipment are quantitatively and qualitatively inadequate, leaving the growing urban population exposed to uncontained structural and industrial hazards.

4.4.3 Emergency Communication and Dispatch Systems

This section evaluates the telecommunications infrastructure used by the local authority to receive disaster alerts, map incident locations, and coordinate active field deployments.

To determine the efficiency of the alert network, the survey tracked the actual channels that residents use to report active fire outbreaks to the municipal station. These channels are summarized in Table 4.4.

Table 4.4: Primary Channels Used by Residents to Report Fire Outbreaks

Emergency Reporting Channels	**Frequency (N=91)**	**Percentage (%)**
Used social media / Community WhatsApp groups	48	53
Sent a representative physically to the fire depot	26	28

Called a municipal landline number	17	19

[Source: Primary Data]

The communication data reveals a deep structural disconnect between the public and the local authority's dispatch center. More than half of the residents rely entirely on informal, crowd sourced digital spaces like WhatsApp groups to spread the word about active fires, rather than using official emergency reporting channels. Even more telling is that nearly a third of the community would resort to physically traveling to the fire station to report a crisis. This indicates that official telecommunication channels are either non-functional, highly congested, or widely unknown to the public, forcing citizens to waste critical minutes during the early, salvageable stages of a fire breakout.

The key informant responses from the dispatch desk confirmed that the local authority operates with outdated, basic communication tools that lack modern automated features. A dispatch operator detailed the manual procedures used to log incoming calls:

> *'...we do not have digital call-tracing or computer-aided dispatch software here so everything depends on an operator manually writing details in a logbook while trying to figure out the location from a paper map.'*

A senior station officer noted the communication failures that occur during active field operations:

> *'...our field crews often lose contact with the central station because our analog radios have dead zones across the newer suburbs forcing the team to use their personal mobile phones to coordinate updates.'*

The findings demonstrate that Norton's emergency communication network is fragmented, underfunded, and reliant on obsolete manual systems. Modern emergency management relies on integrated digital dispatch systems to minimize human error and speed up mobilisation. However, Norton's reliance on manual logging and analog infrastructure introduces severe delays before a vehicle even leaves the station.

When citizens must rely on community WhatsApp groups or physical travel to report a fire, the critical "golden hour" of fire suppression is entirely lost. This lack of centralised emergency lines and geocoded spatial software answers the first objective by showing that the town's communication infrastructure is technically weak. It cannot support rapid,

coordinated alert processing, which slows down institutional mobilisation and worsens disaster impacts on the ground.

4.5 Practical Field Challenges and Urban Planning Realities

This section focuses on the presentation and interpretation of gathered data relating to the second objective of the study. This objective investigated the practical field challenges and structural realities encountered by emergency crews during active deployments in Norton.

4.5.1 Operational Response Times and Turnout Efficiency

This section analyses the time it takes for emergency calls to be processed and crews to arrive at scenes, looking closely at how urban layout variations across Norton's formal and informal zones impact these critical windows.

To establish the baseline public experience regarding service speed, the community survey tracked perceived fire brigade arrival times during local incidents. These findings are presented in Figure 4.3.

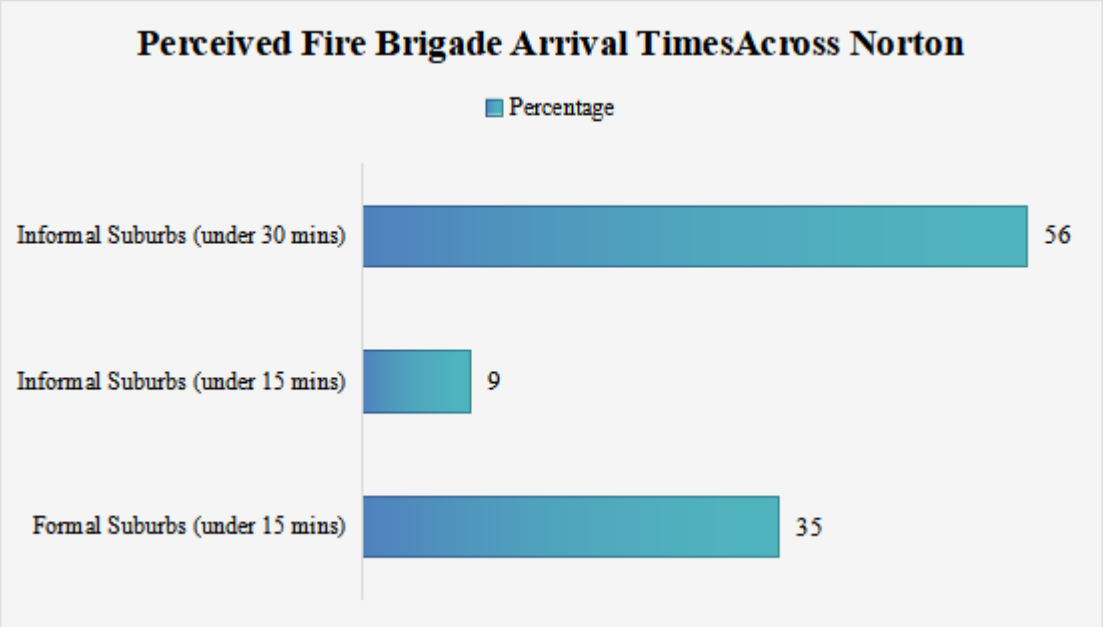


Figure 4.3: Perceived Fire Brigade Arrival Times Across Residential Zones (N=91) [Primary Data]

To further contextualise these arrival times, the survey captured how residents evaluate the physical road accessibility of their neighborhoods, which directly influences vehicle transit speeds. These evaluations are compiled in Table 4.5.

Table 4.5: Community Assessment of Local Road Accessibility

Accessibility Evaluation Statement	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)	Strongly Disagree (%)
The roads leading to my house are wide and clear enough for a big fire truck to pass through easily.	4	22	9	35	30

[Source: Primary Data]

The data highlights a severe spatial divide in emergency arrival times between established formal areas and newly expanded settlements. While a minority of residents in planned areas experience faster responses, the overwhelming consensus among informal peri-urban dwellers points to long transit delays. This shows that the road networks in newer zones are physically hostile to heavy emergency vehicles. Unplanned residential plots have encroached onto historical transport corridors, turning wide roads into narrow, dead-end tracks. Furthermore, because these newer developments completely lack tarred surfaces or regular grading, deep soil erosion and unmanaged terrain create extreme physical resistance, slowing down vehicles and stretching turnout time past safe operational thresholds.

The qualitative accounts from municipal key informants confirmed these physical barriers, detailing how poor urban design directly impedes active field deployments.

During a semi-structured interview, a senior field crew commander highlighted these spatial bottlenecks:

> *'...navigating through new areas or new peri-urban allocations is a logistical nightmare because the stands are unregulated, roads are unmapped, and residents frequently erect illegal structures that block our truck's turning radius completely.'*

Another key informant from the engineering and town planning department noted the lack of infrastructural coordination:

> *'...the rapid pace of informal parallel development has far outpaced our capacity to clear formal service roads, meaning we are responding to modern structural risks using primitive, unnavigable tracks.'*

The combination of the community's spatial assessments and the technical testimonies of the responders demonstrates that poor urban planning is a major structural bottleneck for local

disaster management. Under national civil protection goals, local authorities are expected to minimize urban risks through proactive spatial design. However, the unchecked growth of informal settlements in Norton has created pockets of extreme vulnerability. When emergency vehicles are forced to navigate unpaved, narrow, and unmapped dirt roads, the transit phase of the response is severely compromised. This means that even if a crew mobilises instantly at the station, the structural layout of the destination ensures they arrive long after a fire has achieved flashover, directly answering the second objective regarding structural field challenges.

4.5.2 Standard Operating Procedures and Tactical Fire Suppression

This ssection examines the execution of standard firefighting protocols on the ground, focusing on how macro-resource constraints and utility instabilities disrupt tactical execution during a crisis.

To evaluate the baseline exposure of households to secondary fire hazards that disrupt standard domestic safety, the survey tracked the primary alternative energy choices used by residents during national power blackouts. These choices are illustrated in Figure 4.4.

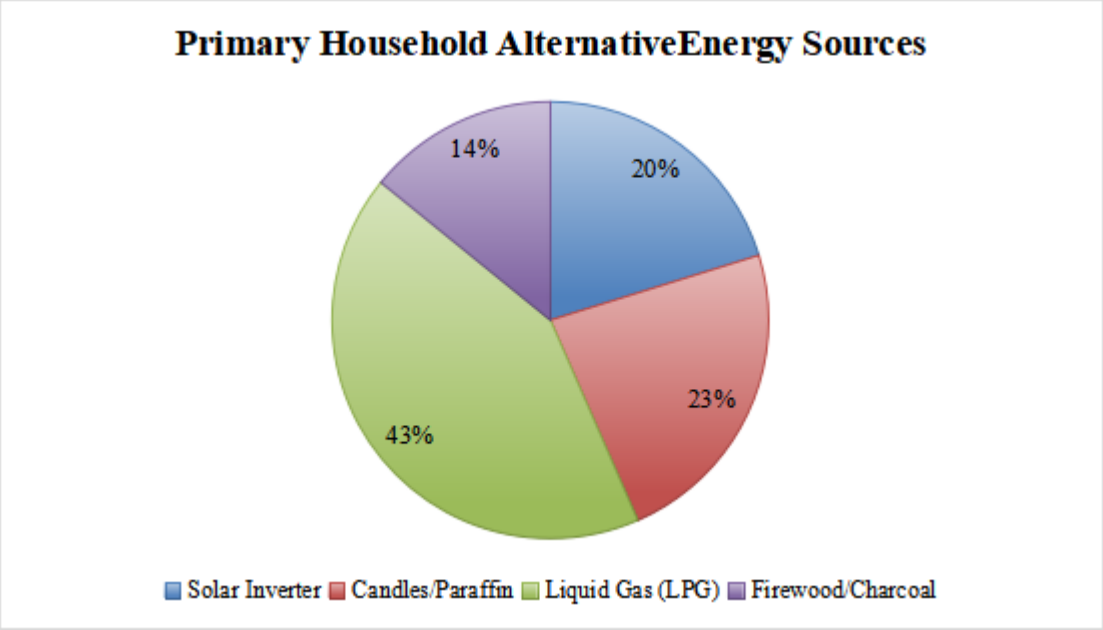


Figure 4.4: Primary Household Alternative Energy Sources During Power Cuts (N=91)[Source: Primary Data]

The data on household energy usage reveals a high concentration of volatile fuels inside residential properties, driven directly by prolonged national power outages. The widespread adoption of liquid petroleum gas (LPG) and open flame options like candles or paraffin

means that the baseline fire risk profile within domestic spaces has increased dramatically. Because these alternative energy sources are handled daily within highly congested residential spaces without specialised storage safety controls, the probability of catastrophic fuel failures, tank explosions, and accidental ignitions is elevated, which drastically increases the complexity of tactical fire suppression when a blaze breaks out.

The interviews with the municipal fire leadership revealed that while recent central government interventions have modernised parts of their fleet, macroeconomic resource volatility, specifically fuel supply lines, severely cripples their capacity to maintain standard operating procedures. A senior station officer acknowledged the recent upgrade in their emergency fleet but highlighted an ongoing operational bottleneck:

> *'...while we are grateful that the central government recently allocated new, modern fire trucks to our council which significantly improved our mechanical capacity, our actual wheels are frequently grounded because our monthly fuel allocations are heavily restricted due to current macroeconomic shortages and rising global supply costs.'*

Another key informant from the administrative finance section explained how budget constraints intersect with global resource shocks:

> *'...the economic pressures this year have forced us to ration fuel across all municipal departments, and unfortunately, emergency services are not completely insulated from these shortages, meaning we have to manage our response fuel box by box.'*

The thematic integration of these findings reveals a dangerous mismatch between increased public fire risks and volatile municipal deployment resources. While the provision of modern firefighting vehicles by the central government resolved a major technical deficit, the survival of this defense system is heavily undermined by severe fuel shortages.

When national power outages force a majority of the population to rely on volatile alternative energies like LPG, the absolute frequency of local fire outbreaks naturally increases. Simultaneously, because the local authority's new fleet is constrained by restricted fuel allocations, its ability to run continuous patrols or sustain prolonged, multi-vehicle suppression operations is compromised. This operational gridlock answers the second objective by showing that resource volatility and utility failures create a high-risk

environment where municipal responders possess the right mechanical tools but lack the structural resource lifelines required to run standard tactical operations reliably.

4.5.3 Multi-Agency Coordination and Mutual Aid Agreements

This section examines the structural communication loops and operational friction that occur when Norton's emergency crews interface with auxiliary external organizations during active disaster scenes.

To understand the community's perspective on how effectively different institutional entities work together during a crisis, the survey tracked public perceptions regarding whether property destruction is worsened by coordination delays. These findings are summarised in Table 4.6.

Table 4.6: Public Perception of Inter-Agency Coordination Efficiency

Scene Coordination Assessment Statement	**Strongly Agree (%)**	**Agree (%)**	**Not Sure (%)**	**Disagree (%)**	**Strongly Disagree (%)**
Property destruction is high because auxiliary utilities (like power disconnects) take too long to coordinate.	40	43	12	4	1

[Source: Primary Data]

The quantitative results demonstrate that the vast majority of the public believes local losses are worsened by operational delays among utility providers. This high level of public agreement points to a visible gap in how emergency scenes are managed. Rather than viewing a fire incident as an isolated challenge for the fire truck, the community recognizes that a successful containment depends on a synchronised multi-agency effort. When secondary indicators such as live power lines remaining active during a water offensive are observed by onlookers, it reflects a failure in the town’s integrated disaster response framework.

The qualitative insights from the municipal key informants confirmed these coordination gaps, explaining the institutional silos that delay field operations and the lack of functional

mutual aid agreements. An active operations officer detailed the dangers faced due to poor external agency synchronisation:

> *'...we cannot safely deploy water jets onto a structural roof fire until ZESA physically isolates the localised power grid, but getting their switching team to respond to our emergency calls often takes over forty-five minutes, leaving us standing idle while the fire spreads.'*

A civil protection coordinator discussed the lack of integrated communication protocols and formal regional support:

> *'...there is no shared digital command channel connecting the council fire desk, the national water authority, and the police, so all multi-agency alerts have to be routed through slow, manual telephone trees during a live crisis. We also lack formal, binding mutual aid agreements with neighboring towns, meaning any outside help has to be negotiated from scratch while properties burn.'*

The thematic findings show that Norton's disaster response system lacks an institutionalised Unified Command Structure and functional mutual aid partnerships, which directly hampers efficiency on the ground. Effective modern fire administration requires that police crowd control, electrical isolation, water main management, and fire suppression work as a single, coordinated system. In Norton, however, these units operate as isolated entities that only connect after an incident occurs. This missing operational link forces fire crews to delay their attacks to avoid electrocution or combat structural blazes without adequate police crowd control to clear service zones. This evidence answers the second objective by proving that poor multi-agency coordination and the lack of a centralized command protocol act as severe field challenges that slow down real-time actions and worsen property losses across the municipality.

4.6 Policy Frameworks, Institutional Budgeting, and Community-Driven Safety Pathways

This section presents and interprets the data collected from the field regarding the third objective of the study. This objective examined the governance frameworks, municipal resource allocations, and community-led initiatives that shape Norton's long-term disaster preparedness.

4.6.1 Institutional Budgeting, Staff Training, and Capacity Building

This section evaluates the financial mechanisms funding Norton's emergency response and looks closely at how local resource allocations influence staff training and long-term institutional capacity building.

To understand public satisfaction with how the local authority manages its resources for essential services, the survey tracked whether residents believe emergency services are prioritised. These findings are presented in Table 4.7.

Table 4.7: Public Perception of Municipal Budget Priority

Institutional Governance Evaluation Statement	**Strongly Agree (%)**	**Agree (%)**	**Not Sure (%)**	**Disagree (%)**	**Strongly Disagree (%)**
The council prioritizes fire safety and emergency resources in its annual budget.	0	5.5	13.2	41.8	39.5

[Source: Primary Data)

To further analyse the financial relationship between the council and the community, the survey tracked public willingness to fund emergency improvements through a dedicated monthly levy. These perspectives are illustrated in Figure 4.5.

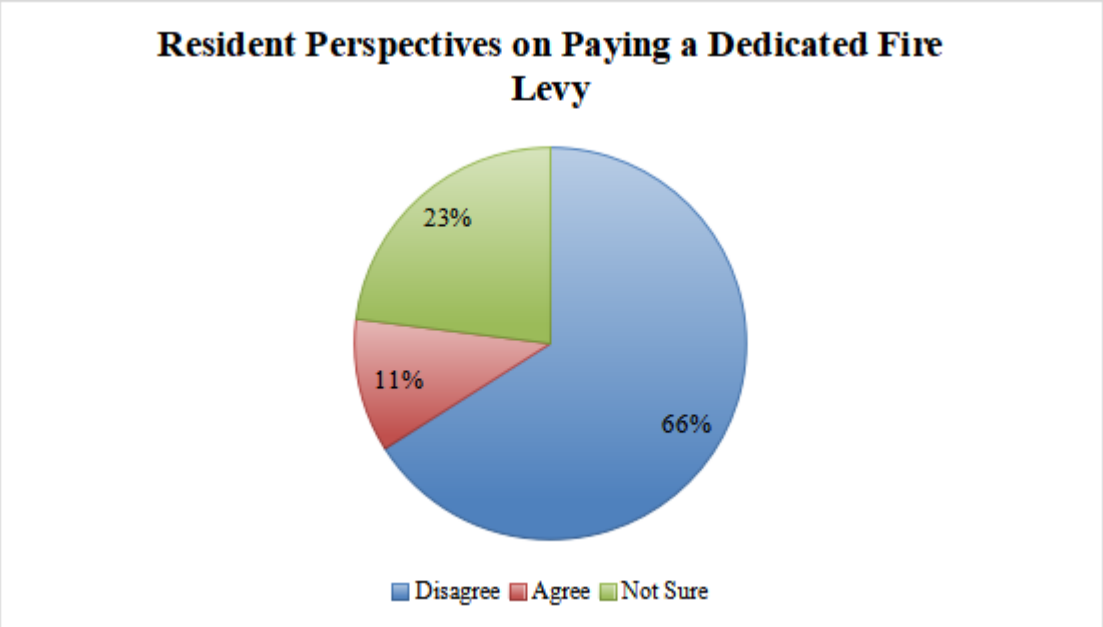


Figure 4.5: Resident Perspectives on Paying a Dedicated Fire Levy (N=91) [Source: Primary Data]

The findings demonstrates a severe funding gap that directly cripples institutional capacity building and specialized staff development. The overwhelming public sentiment that the council sidelines emergency funding shows that fire defense is treated as a low administrative priority. This lack of prioritisation feeds into a deep trust deficit, as seen in the widespread community opposition to a dedicated fire levy. Because residents do not see transparent investments in emergency services, they refuse to subsidise them further. This creates a restrictive fiscal cycle where low revenue collections prevent the council from investing in advanced professional training or upgrading outdated rescue equipment.

The qualitative insights from institutional key informants confirmed these financial struggles, explaining how budget diversions freeze capacity-building initiatives. An administrative official in the finance department explained the realities of budget execution during an interview:

> *'...our annual budget allocations look good on paper, but actual fund disbursement to the fire section is extremely low because we are constantly forced to redirect scarce cash reserves to clear immediate crises like water treatment chemicals and salary backlogs.'*

A senior station officer highlighted the impact of these financial deficits on advanced staff training:

> *'...most of our crew members have not attended advanced specialised courses such as hazardous materials handling or high-rise rescue techniques for years because there is simply no institutional budget to fund training external to basic municipal routines.'*

The financial data and administrative accounts reveal that Norton's fire department operates in a survival mode that stalls institutional growth. Sustainable disaster governance requires consistent funding to train personnel and adapt to emerging urban hazards. However, in Norton, the continuous diversion of resources to other municipal operational debts leaves the fire brigade underprepared for complex multi-hazard emergencies. This evidence answers the third objective by showing that structural budget constraints directly block staff training and capacity building, leaving the town's emergency services weak and financially vulnerable.

4.6.2 Community-Based Disaster Risk Reduction and Public Awareness

This subsection evaluates the level of public fire safety literacy and examines the informal, community-led strategies that residents deploy to cope with municipal service gaps.

To measure baseline household preparedness and the reach of local public safety campaigns, the survey tracked household training exposure and tool ownership. These findings are summarized in Table 4.8.

Table 4.8: Household Ownership of Fire Safety Equipment and Training Exposure

Domestic Preparedness Indicator	**Yes (%)**	**No (%)**	**Not Sure (%)**
I have a functional fire extinguisher inside my house.	2	97	1
I have attended a fire safety awareness campaign in Norton.	6	92	2

[Source: Primary Data]

The quantitative results show low levels of formal fire preparedness within the community, driven by a lack of institutional public awareness programs. The fact that almost the entire sample lacks basic fire extinguishers and has never attended a safety campaign indicates that formal Community-Based Disaster Risk Reduction (CBDRR) frameworks are practically non-existent in Norton. Without regular public outreach, residents remain unfamiliar with basic safety measures, such as how to safely suppress electrical faults or control initial kitchen fires. This lack of knowledge allows minor incidents to develop into full structural losses before emergency vehicles arrive.

Despite the lack of formal institutional training, the qualitative interviews revealed that local communities have developed informal, grassroots systems to protect themselves. A community development coordinator described these neighborhood response networks during an interview:

> *'...since the council truck often takes long to arrive, residents in high-density areas have formed neighborhood watch alerts to quickly mobilise buckets of sand and water whenever a house catches fire.'*

An emergency services coordinator acknowledged both the benefits and risks of these informal practices:

'...the public shows great courage when helping neighbors using buckets and soil, but because they lack basic training, they often endanger themselves by inhaling toxic smoke or exposing themselves to exploding gas cylinders'

The synthesis of these findings demonstrates that while institutional risk reduction programs are missing, community necessity has driven the creation of informal safety pathways. These grassroots networks provide an essential first line of defense during the opening minutes of a fire, but they cannot replace a professional fire service. Relying on basic tools like buckets of sand and water exposes untrained residents to severe physical risks. This answers the third objective by showing that while formal public awareness is dangerously low, strong community networks exist that the council could train and integrate into a safer, more formal disaster reduction framework.

4.6.3 Legislative Frameworks and Enforcement of Fire By-laws

This section examines how effectively Norton Town Council implements national fire safety regulations and evaluates the local enforcement of municipal building and safety bylaws.

To gauge how well local safety policies are enforced at the household level, the survey asked community members if their properties had ever been inspected for fire compliance by municipal authorities. These responses are illustrated in Figure 4.6.

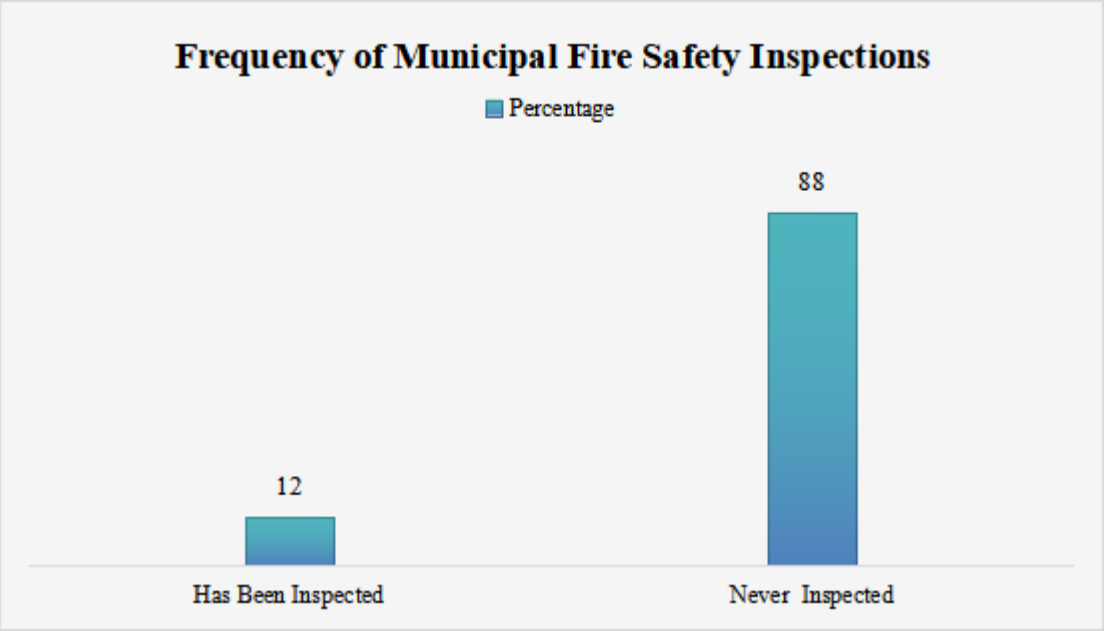


Figure 4.6: Household Fire Safety Inspection Rates Across Norton (N=91)[Source: Primary Data]

The survey data reveals a near-total collapse of proactive policy enforcement within residential areas. The fact that the vast majority of households have never been visited by a municipal fire inspector indicates that local enforcement is reactive, typically occurring only after a severe fire or tragedy has already taken place. This lack of oversight is particularly dangerous in newer, informal peri-urban zones where housing expansion has outpaced formal zoning controls. Without regular code enforcement, structural fire risks such as uninspected electrical wiring, lack of fire separation gaps, and the use of highly flammable building materials are allowed to spread unchecked across the town.

The interviews with municipal key informants confirmed these enforcement challenges, pointing to severe staff shortages and outdated regulations. A senior health and safety inspector highlighted these administrative limits during an interview:

> *'...we simply do not have the manpower or vehicles to conduct regular inspections across the newer residential stands, so our small team is forced to focus almost entirely on commercial buildings and factories in the industrial area.'*

A legal advisor for the council noted that local regulatory frameworks have failed to evolve:

> *'...our current municipal fire bylaws are old and do not account for modern residential risks, like high-density gas retailing or solar power system installations, which leaves our enforcement officers without clear legal backing.'*

The field findings show a significant gap between national legislation, such as the Civil Protection Act [Chapter 10:06], and local enforcement realities. National frameworks require urban councils to use proactive regulatory enforcement to minimise public vulnerability. In Norton, however, outdated bylaws and a shortage of inspectors have turned fire safety into an afterthought. By failing to enforce building codes and safety regulations in expanding residential areas, the council allows new physical hazards to develop daily. This evidence answers the third objective by proving that local policy enforcement is weak and structurally unsuited to manage the town's changing risk profile.

4.7 Discussion of Findings

This section presents the discussion of the research findings established in this study by contextualising them within the broader framework of existing urban planning and disaster management literature. The discussion is systematically structured around the study's three core research objectives: evaluating municipal hazard response mechanisms, examining

localised disaster preparedness levels, and analysing the legislative and institutional frameworks governing emergency services in Norton. By explicitly comparing field data with previous scholarly work, this section highlights key areas of convergence and divergence, provides structural justifications for the observed realities, and self-critically evaluates the methodological limits of these outcomes.

4.7.1 Operational Capacity and Structural Constraints of Municipal Fire Services

The study established that Norton's fire emergency services operate under severe physical and structural constraints, characterised by a near-total collapse of dedicated water infrastructure and heavily rationed municipal fuel allocations that frequently ground response fleets. In line with these findings, Chanza and Ndlovu (2021) observed similar structural bottlenecks in their analysis of secondary African towns, concluding that rapid urban expansion consistently outpaces the development of basic reticulation networks and emergency support grids. This specific resource deficit occurs because the local authority operates under severe macroeconomic strain and hyperinflation, which forces administrators to treat emergency service fuel and foam supplies as secondary priorities compared to immediate municipal debts like water treatment chemicals.

Conversely, while this study links operational failure directly to local fiscal and infrastructure starvation, international benchmarks by the National Fire Protection Association (NFPA) present a contrasting perspective, asserting that turnout delays are primarily driven by poor internal station mobilisation protocols and inadequate professional crew training. This contradiction can be attributed to the vast socio-economic differences in research settings; standard international models assume a baseline of functional municipal utilities and stable capital funding, which does not reflect the reality of secondary towns in developing nations. Self-critically, however, this study's evaluation of response capacity may suffer from a degree of participant recall bias, as community respondents often overestimate arrival times due to the acute panic experienced during active fire disasters, a variable this research did not statistically isolate.

4.7.2 Practical Field Challenges, Spatial Realities and Community Resilience

The field data demonstrated that poor spatial planning, unmapped tracks, and illegal structural encroachments in informal peri-urban zones systematically push emergency arrival windows beyond the critical 30-minute threshold. This result strongly aligns with the spatial vulnerability models of Chirisa (2023), who found that parallel development the practice of

occupying residential plots before roads are formally cleared, graded, or mapped creates permanent physical bottlenecks for heavy emergency vehicles in expanding Zimbabwean settlements. These unnavigable spatial layouts exist because weak municipal land enforcement allows informal housing developments to expand faster than formal engineering surveys can be completed.

Interestingly, while this study found that low institutional preparedness forced communities to adapt by successfully building proactive, crowdsourced communication trees via digital platforms like WhatsApp, a contradicting study by Musekwa (2022) argued that informal community networks in small towns are generally disorganized, highly reactive, and structurally incapable of mitigating active fire spreads without direct municipal supervision. This divergence is likely driven by the differing levels of mobile network penetration and smartphone literacy unique to the peri-urban populations chosen for each sample. From a self-critical standpoint, this study acknowledges that by focusing its spatial analysis primarily on high-density informal zones, it may have inadvertently generalized localized gridlocks to the entire town, thereby understating the relatively efficient transit paths available within Norton's older, formally planned low-density suburbs.

4.7.3 Legislative Frameworks, Budgetary Diversions and Public Trust

The empirical findings revealed that institutional disaster preparedness is severely undermined by a lack of financial independence within the emergency department, leading to the regular diversion of fire funds to cover broader municipal administrative debts. In an identical analysis of local governance failures, Mushore (2021) confirmed that small urban councils across Southern Africa routinely liquidate capital safety budgets to cover pressing payroll backlogs and immediate operating costs. This systemic diversion happens because the local authority lacks an independent, legally protected treasury for emergency services, leaving the fire department's budget completely vulnerable to executive reallocations during fiscal crises.

However, while our field data shows that residents actively resist paying a dedicated municipal fire levy due to a complete collapse of public trust in council transparency, Johns and Martins (2025) found a contradicting result in their study of municipal safety fees, demonstrating that urban communities are generally willing to pay targeted safety taxes regardless of their overall opinion of local political leadership. This contradiction can be explained by the extreme nature of service delivery collapse in Norton; the trust deficit has

crossed a critical threshold where residents view any new levy as an extractive financial penalty rather than a protective public investment. A critical limitation of our own methodology here is that the study relied heavily on self-reported questionnaire data regarding residents' willingness to pay, which can introduce social desirability bias or strategic bias, where participants claim they cannot afford or trust a system simply to discourage the future implementation of local taxes.

In summary, the consolidated findings across all three objectives reveal that Norton's fire defense system is trapped in a systemic cycle of vulnerability where physical, spatial and institutional failures reinforce one another. The discussion demonstrates that while macro-level interventions such as the central government's recent allocation of new fire engines are useful, they are completely neutralised by local structural failures, including dry water mains, unmapped roads, and diverted budgets. True urban resilience cannot be achieved by purchasing equipment in isolation. It requires a synchronised approach that links spatial planning enforcement, independent emergency financing, and the formal integration of the grassroots community networks that are currently operating as the town's true first line of defense.

4.8 Chapter Conclusion

This chapter presented, interpreted and discussed the empirical data gathered from the field to evaluate the fire disaster risk profile and emergency response capacities of Norton Town Council. Using a mixed-methods approach, the study quantified the severe infrastructure deficits facing the municipal fire services, notably the collapse of the hydrant network and the spatial bottlenecks that delay response times in informal settlements. These quantitative metrics were further enriched by qualitative key informant interviews that exposed systemic budget diversions, outdated bylaws, and a profound public trust deficit that blocks local safety levies. Finally, the findings were critiqued against existing literature, highlighting that while Norton's spatial and financial struggles align with regional trends of underfunded African municipalities, its community-driven reliance on digital WhatsApp networks represents a unique departure from traditional disaster management models. This comprehensive situational analysis lays the empirical foundation for the conclusions and targeted policy recommendations presented in the final chapter.

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This final chapter brings the entire study to a close by bringing together the core arguments, empirical evidence, and field insights established across the previous sections. The main goal of this research was to critically evaluate the fire disaster risk profile and institutional emergency response capacities within Norton Town Council. This chapter provides a clear summary of the key findings organized by research objectives, draws meaningful conclusions that explain what these results actually mean for the town's future, and offers practical, realistic recommendations for policy changes. Finally, it suggests specific areas where future researchers can expand on this work to improve urban safety.

5.2 Summary of Findings

Regarding the first objective, which evaluated the operational capacity and structural constraints of Norton's fire emergency services, the study found a near-total collapse of dedicated water infrastructure and severe turnout delays. The field data revealed that the town's fire hydrant network is completely non-functional due to chronically low municipal water pressure and disconnected water mains. This forces emergency crews to treat the entire town as a dry zone and rely solely on the limited water tank built into their single active fire engine. Furthermore, response times frequently exceed 30 minutes in rapidly expanding peri-urban neighborhoods because of unnavigable road networks and an outdated, manual dispatch system that forces residents to report active fires by physically traveling to the station or using informal community WhatsApp groups.

Under the second objective, which examined practical field challenges and localised disaster preparedness levels, the research exposed a massive gap between central government equipment support and local community realities. While the central government recently provided Norton with new fire engines, these vehicles are frequently grounded because the town council lacks the operating budget to buy fuel consistently. This fuel rationing is worsened by a "domino effect" of utility failures, where prolonged national power outages force a high percentage of households to rely on volatile alternative energy sources like Liquid Petroleum Gas (LPG) and candles, which dramatically increases the fire load in domestic spaces. Because of this lack of consistent municipal protection, household emergency equipment ownership is critically low, leaving families without home fire extinguishers or formal risk awareness training.

For the third objective, which analyzed legislative frameworks, institutional budgeting, and regulatory enforcement, the study revealed that long-term emergency capacity building is undermined by severe financial diversions and weak policy enforcement. The fire department operates without any financial independence, as the town council routinely diverts money collected from fire levies to pay for urgent everyday debts like water treatment chemicals and staff salary backlogs. Consequently, proactive fire inspections are rare because the department lacks the staff to cover expanding settlements. This problem is compounded because the council's local fire bylaws are decades out of date and do not give enforcement officers the legal authority to inspect or regulate modern, high-risk urban trends like informal residential LPG retailing and solar battery setups.

5.3 Conclusions

This research concludes that a fire defense strategy built purely on high-capital vehicle procurement yields zero net safety gains if it is uncoupled from broader urban planning realities, meaning that severe arrival delays and suppression failures are the direct structural results of dry water grids, unmapped access tracks, and unregulated parallel land development.

The study concludes that chronic municipal resource starvation forces an unsafe, default transfer of physical risk onto untrained citizens, demonstrating that the emergence of crowdsourced digital alerts and voluntary bucket brigades is born out of institutional desperation rather than community empowerment, and that public resistance to safety levies stems from a broken institutional trust contract rather than citizen apathy.

This thesis concludes that Norton's emergency framework is trapped in an administrative vacuum that guarantees operational failure, because the continuous executive diversion of targeted safety funds treats the fire service as a dispensable luxury rather than a statutory obligation, while rigid, outdated legal review processes leave enforcement officers completely powerless to govern highly volatile energy hazards.

5.4 Recommendations

- ✓ Operational Capacity and Infrastructure: The Norton Town Council’s engineering and fire departments must immediately prioritise the physical rehabilitation of the strategic municipal water hydrant network and deploy a basic digitised emergency dispatch system to eliminate response bottlenecks and end the dangerous reliance on single-tanker dry runs.

- ✓ Field Challenges and Community Preparedness: The municipal planning department must strictly halt parallel housing allocations in peri-urban zones to guarantee that clear, unmapped transit roads are formally graded before occupation, while simultaneously integrating existing grassroots WhatsApp networks into official safety structures through basic first-responder training.
- ✓ Legislative Frameworks and Institutional Budgeting: The council's executive and legal management must immediately establish a legally ring-fenced bank account solely for emergency services to prevent the diversion of fire levies to broader municipal debts, whilst urgently rewriting the town's outdated bylaws to grant inspectors the explicit statutory authority to regulate modern, high-risk domestic energy installations.

5.5 Further Researches

While this study provided a comprehensive overview of municipal capacities and community risks within Norton, several critical areas require deeper academic investigation. First, future studies should conduct a detailed spatial-temporal analysis of fire risks across changing peri-urban boundaries using Geographical Information Systems (GIS) to map exact risk zones and optimize the placement of future sub-stations. Second, there is a clear need to research the economic and logistical feasibility of public-private partnerships (PPPs) in funding municipal emergency services within developing economies, looking at how private businesses can help fund safety systems. Finally, more research should be done to explore the safety, legal liabilities, and practical effectiveness of using crowdsourced mobile technology and smart social media applications within community-based disaster risk reduction frameworks across Southern Africa.

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APPENDICES

Appendix A: Community Survey Questionnaire

My name is Florence Rice, and I am a student at Bindura University of Science Education. I am carrying out a study titled "Fire Hazard Response and Disaster Preparedness in Norton Town Council." This survey is part of my university degree program. The main goal is to understand how ready our households are for fire emergencies, how easy it is to get water when there is a fire, and what you think about our local fire services.

Your participation is completely voluntary, and you can stop answering at any time. To protect your privacy, this form is totally anonymous. Please do not write your name, phone number, or home address anywhere on this paper. Your answers will be kept private and will only be combined with other responses in Microsoft Excel to help with my school research. The questions will only take about 5 to 10 minutes of your time. Your honest answers will help show where our community needs better safety and emergency services.

Section 1: About You and Your Area

1. Which type of area do you live in?

[ ] Formal residential area

[ ] Informal Area

2. What is your gender?

[ ] Male

[ ] Female

3. How long have you lived in Norton?

[ ] Less than 2 years

[ ] Between 2 and 5 years

[ ] More than 5 years

Section 2: Water Access and Neighbourhood Roads

4. Where do you get most of your water for daily home use?

[ ] Council tap water

[ ] Community borehole or a protected well

[ ] Open water sources or buying from water vendors

5. How often do you get council tap water in your neighborhood?

[ ] Every day without fail

[ ] Sometimes

[ ] Never / Our council taps are completely dry

6. Tick the box that best matches what you think about these statements:

Statement	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
I can see working fire hydrants (water points for fire trucks) near my home					
The roads leading to my house are wide and clear enough for a big fire truck to pass through easily					
The water pressure in my area is strong enough to put out a big fire.					

Section 3: Home Fire Safety nd Knowledge

7. Do you have anything at home to put out a fire (like a fire extinguisher, fire blanket, or a bucket kept just for sand/water)?

[ ] Yes

[ ] No

8. What does your home use most when there is a power cut (load shedding)?

[ ] Candles or Paraffin

[ ] Gas stove (LPG)

[ ] Solar power or Inverter

[ ] Firewood or Charcoal

9. Tick the box that best matches what you think about these statements:

Statement	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
I know the exact phone number to call the Norton Fire Brigade if there is an emergency.					
My family has a clear plan on how to escape safely if a fire starts inside our house.					
I feel confident that I can use simple ways (like throwing sand or using a bucket of water) to stop a small fire.					

SECTION 4: HOW THE COUNCIL RESPONDS TO FIRES

10. If you have ever seen a fire breakout in Norton, how did people report it to the town council?

[ ] Someone called the council landline number

[ ] Someone walked or drove directly to the council offices/fire station to report it

[ ] People posted about it on social media or community WhatsApp groups

[ ] I have never seen a fire incident happen in Norton

11. Tick the box that best matches what you think about these statements:

Statement	**Strongly Agree**	**Agree**	**Not Sure**	**Disagree**	**Strongly Disagree**
The Norton Town Council fire truck arrives very fast (in less than 15 minutes) after a fire is reported.					

Fires destroy a lot of property in Norton because the fire trucks usually arrive without enough water.					

Thank you very much for taking your time to fill out this form. Your support is highly appreciated. Your answers are very important and will help us understand how to make Norton a safer place for everyone. Your responses have been saved and will be kept completely secret.

Appendix B: Key Informant Interview Guide

You are invited to take part in an expert interview for the research project titled "Fire Hazard Response and Disaster Preparedness in Norton Town Council." This study is being carried out by Florence Rice, a student at Bindura University of Science Education, to evaluate local fire risk management, municipal infrastructure, and response challenges.

Given your professional role and experience within the local authority, your insights are crucial to understanding the practical challenges and strategies facing Norton's emergency services. This interview is voluntary, and you may decline to answer any specific question or end the session at any time. Your identity will be protected using strict alphanumeric codes (such as Participant A, Participant B) in the final thesis text, and no specific staff names will be made public. With your permission, this session will be audio-recorded solely to ensure accurate typing of our conversation. The discussion will take approximately 20 to 30 minutes.

Part 1: Fire Emergency Infrastructure Capacity

1. Could you describe the current operational state and size of the Norton Town Council emergency firefighting fleet?

2. What specific challenges does the local authority face regarding municipal water reticulation pressure and the maintenance of localised fire hydrants?

3. How are fire alarms logged and dispatched within the council, and what telecommunication technologies are currently available to your operators?

Part 2: Operational Realities and Field Challenges

4. What is the average turnout time and transit time for emergency crews responding to incidents in formal suburbs versus informal peri-urban settlements?

5. How does the council coordinate with auxiliary external agencies (such as the Zimbabwe National Water Authority, the Zimbabwe Republic Police, or ZESA) during an active emergency scene?

6. In what ways do urban planning challenges, such as unpaved roads or unregulated structures, affect the deployment of standard operating procedures on the ground?

Part 3: Preparedness, Budgeting, and Policy Pathways

7. How does the current municipal budget allocation affect continuous staff training, capacity building, and procurement of personal protective equipment?

8. To what extent are community-based disaster risk reduction initiatives or public awareness campaigns integrated into the council's annual operational plans?

9. What legislative bottlenecks exist when attempting to enforce local fire safety by-laws (such as SI 237 of 2019) across expanding commercial and informal marketplaces in Norton?

10. What forward-looking strategies or infrastructure updates do you consider critical to achieving integrated fire management within the town council?

Thank you very much for your valuable time, cooperation, and expert insights. Your professional perspective provides this study with the necessary depth to bridge the gap between disaster management policy and real-world municipal administration.

Appendix C: Approval Letter Fron Bindura University of Science Education

Bindura University of Science Education

DISASTER RISK REDUCTION DEPARTMENT
Private Bag 1020,
Bindura, Zimbabwe
Tel 263 – 66210-7531-6, 7621-4
Fax: 263-66210-7534
E-mail: emavhura@buse.ac.zw or edmavhura@gmail.com
Cell: +263 773 487 211

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BINDURA UNIVERSITY OF SCIENCE EDUCATION

26 NOVEMBER 2025

To Whom It May Concern:

This is to confirm that **FLORENCE RICE**, Registration Number **B213134B** is a student doing a Bachelor of Science Honours Degree in Disaster Management Sciences in the Disaster Risk Reduction Department at Bindura University of Science Education and is required to do a Research Project as part of her Degree programme. The student is expected to gather data for her project from various sources including your institution.

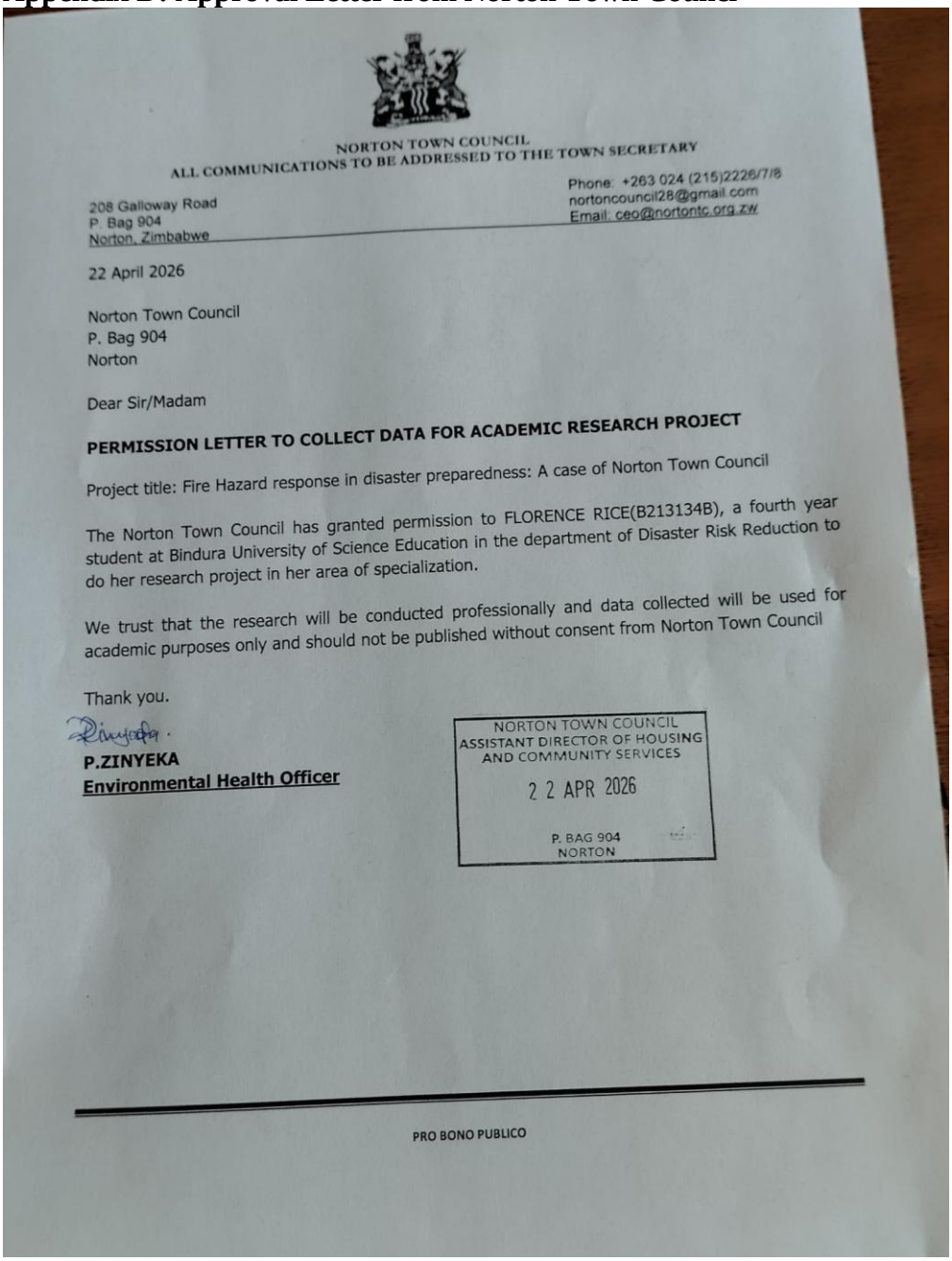
This letter therefore serves to kindly ask you to assist the above-mentioned student with information relating to her project entitled:

AN ASSESSMENT OF THE EFFECTIVENESS OF FIRE HAZARD RESPONSE ON DISASTER PREPAREDNESS. A CASE STUDY OF NORTON.

Thank you.

EMMANUEL MAVHURA (PhD)
CHAIRMAN

Appendix D: Approval Letter from Norton Town Counci



NORTON TOWN COUNCIL
ALL COMMUNICATIONS TO BE ADDRESSED TO THE TOWN SECRETARY

208 Galloway Road
P. Bag 904
Norton, Zimbabwe

Phone: +263 024 (215)2226/7/8
nortoncouncil28@gmail.com
Email: ceo@nortontc.org.zw

22 April 2026

Norton Town Council
P. Bag 904
Norton

Dear Sir/Madam

PERMISSION LETTER TO COLLECT DATA FOR ACADEMIC RESEARCH PROJECT

Project title: Fire Hazard response in disaster preparedness: A case of Norton Town Council

The Norton Town Council has granted permission to FLORENCE RICE(B213134B), a fourth year student at Bindura University of Science Education in the department of Disaster Risk Reduction to do her research project in her area of specialization.

We trust that the research will be conducted professionally and data collected will be used for academic purposes only and should not be published without consent from Norton Town Council

Thank you.

P.ZINYEKA
Environmental Health Officer

NORTON TOWN COUNCIL
ASSISTANT DIRECTOR OF HOUSING
AND COMMUNITY SERVICES
22 APR 2026
P. BAG 904
NORTON

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