



(RESEARCH ARTICLE)



Assessment of the bureau of fire protection service in the national capital region

ROMAE R DE ASIS *, MARCO M MANAOIS, FERDINAND Z DE ASIS and MARIA KRISIA FAE DE ASIS-HERNAEZ

Institute of Graduate Studies and Research, Metro-Dagupan Colleges, Mangaldan, Pangasinan, Philippines.

World Journal of Advanced Research and Reviews, 2025, 26(03), 2230-2248

Publication history: Received on 10 May 2025; revised on 16 June 2025; accepted on 18 June 2025

Article DOI: <https://doi.org/10.30574/wjarr.2025.26.3.2376>

Abstract

The study analyzed the services of the Bureau of Fire Protection in the National Capital Region. The researcher employed mixed-method research using qualitative and quantitative designs. The researcher both used document analysis and statistical data analysis in the data. This study utilized a document analysis form of research that uses a systematic procedure to analyze documentary evidence and answer some research questions. The qualitative part, the document analysis, applies to problem number one, which sought to identify the Bureau of Fire Protection services in the National Capital Region. On the other hand, the Likert Scale and weighted mean, which fall under the quantitative methods, was used for problems numbers two and three. Problem statement number 2 assessed the services in terms of fire prevention, fire suppression, fire investigation and intelligence, and emergency medical or rescue services. Problem statement number three identified the problems encountered by the Bureau of Fire Protection in performing its services in NCR.

Findings of the study showed that fire prevention, fire suppression, fire intelligence and investigation, and emergency rescue and medical services are being conducted by the BFP of the National Capital Region and effectively undertake their functions and roles in their operations. Further, all of the areas of services of the Bureau of Fire Protection in the NCR are Highly Implemented. It was further revealed that the lack of resources and technological advancements in firefighting was the main problem identified by the combined responses of the BFP personnel and the Barangay Officials.

Keywords: Bureau of Fire Protection; Fire Prevention; Fire Suppression; Emergency Medical Services; Fire Investigation

1. Introduction

Today's fire service has many responsibilities ranging from Fire Prevention Services, Fire Suppression Services, Fire Investigation and Intelligence Services, and Emergency Medical or Rescue Services. The knowledge base required to continue doing the work safely and successfully has grown along with their obligations. Firefighters seeking to adapt to this newly constructed environment are caught off guard since new technology and building materials are being pushed into the consumer world faster than ever.

The first service of the Bureau of Fire Protection is the Fire Prevention Services, which focuses on fire safety inspection of buildings and establishments, fire safety awareness campaigns, and fire brigade organization. Second is the Fire Suppression Services, which occur worldwide in dangerous, time-sensitive environments. It is carried out at all hours of the day and night, in all kinds of weather, and usually in new settings. The work is mentally stressful and physically exhausting. The course of the operation and the result of the incident may be negatively impacted by a little delay in operations, mainly when the initial fire apparatus is arriving and positioning. The third is the Fire Investigation and Intelligence Services, which examine the physical characteristics of a fire site where assigned personnel gather tangible evidence. The evidence will be analyzed to determine whether the fire's origin was accidental or intentional. When

* Corresponding author: ROMAE R DE ASIS

examining the area, investigators can discover evidence like accelerants, tampered utilities, and particular burn patterns that could point to criminal conduct lastly, the Emergency Medical and Rescue Services, which provide emergency medical care. EMS concentrates on the patient's emergency medical care when an occurrence results in severe illness or injury. Emergency Medical and Rescue is most readily identified when vehicles or helicopters are seen responding to emergencies, but it involves much more than a ride to the hospital. It is a coordinated emergency medical care and response system encompassing many people and organizations.

Fire accidents increase damage to the environment and the economy. It always has a reason why it occurred. Carelessness, discarded cigarettes, improper handling of combustible materials, improperly maintained or defective heating systems, an explosion from petroleum products, sunlight shining on glasses that could cause a convex lens to light up, overheating, and electrical defects are the common causes of fire.

According to the World Health Organization, there are an estimated 180,000 global burn deaths every year, most of which it occur in low and middle-income nations. International Fire Statistics show that 86% of all fatalities start in residential buildings, and improper human behavior is to blame for 66% (WHO, 2018).

A lot of people experienced difficulty in 2021, including fire departments. There are an estimated 1,353,500 fires that were put out by local fire departments in the United States, including those defending towns, townships, cities, and counties. These fires are attributed to three thousand eight hundred civilian deaths and 14,700 civilian injuries. Fire stations continued to respond to numerous Corona Virus Disease related medical calls, and firefighters had to deal with departmental understaffing and COVID-19 outbreaks. Additionally, a fire department in the United States responded to a fire every 23 seconds on average in 2021. Every two hours and 18 minutes, a fire claimed the life of a civilian. A citizen sustained a nonfatal fire injury every 36 minutes.

Statistics from insurance companies show that in Sweden, 1% of all fires account for 50% of all fire expenditures. Technical and organizational issues may cause sure fires to spread and cost more money. Significant accidents rarely have a single cause but have a complex web of interconnected causation factors.

The Bureau of Fire Protection is a public sector that provides services to prevent and suppress destructive fires. The implementation of the Philippine Bureau of Fire Protection is responsible for the enforcement of the Fire Code of the Philippines. It also requires and enforces the prevention and extinguishment of all destructive fires, including those that break out in homes, buildings, and other structures like trees, cars, machinery, and equipment. Every company owner must get Fire Safety Evaluation Certificates and Fire Safety Inspection Certificates, which necessitates several steps in the process. These steps delay the issuance of the government as mentioned above permissions and can occasionally lead to destructive fires.

The consistently high fire statistics demonstrate the need for the Bureau of Fire Protection to strictly implement its strategic programs for reducing fire. From 2013 to 2018, there were 15,733 fire occurrences in the Philippines, resulting in 855 fire-related injuries and 253 fire-related fatalities annually (Congressional Policy and Budget Research Department, 2020).

The Philippine spatiotemporal investigation of fire incidents enables authorities to create sustainable logistics in firefighting operations. Fire mapping approaches that may provide models of fire events are necessary for the suppression of fires through temporal and spatial analysis. Hazard-prone area mapping is a common technique for identifying trends in disasters, and it produces information about locations with particular fire risks (Balahadia and Trillanes, 2017).

The Bureau of Fire Protection (BFP) of the Philippines is a government agency whose role is to suppress and prevent the outbreak of destructive fires, enforce relevant laws, and provide emergency medical and rescue services. However, the BFP faces an uphill struggle in the performance of its duties in a conflagration-prone nation such as the Philippines. The country is saddled with aging and/or inadequately installed or constructed infrastructure, including electrical systems, which thus pose a significant risk. Additionally, the combination of two of the country's defining characteristics – extremely hot summers and drenching monsoon seasons – put the country's inadequate systems under their particular sort of pressure year-round.

The last 100 years of firefighting expertise have significantly influenced many of the firefighting strategies utilized today. Firefighters must modify their strategies with new materials and systems to combat fires and safeguard themselves. Furthermore, delays brought on by inconveniently placed fire hydrants, murky information from fire alarm systems, inefficient communication systems, or inaccessible equipment may negatively impact other facets of the

operation. The risk to people and firefighters will likely increase with these delays since the fire is expected to spread exponentially.

Every local government unit in the Philippines has a lot of trouble because of the fire catastrophe. The National Capital Region (NCR) has 145 fire stations in cities, each equipped with a fire truck. NCR is composed of 17 cities and 2 municipalities. Being a highly urbanized region, it is the business capital of the country and puts the entire region at risk. Failure to consider the causes of fire occurrences causes the current fire safety system to operate inadequately, which endangers human lives. Proper planning and implementing control mechanisms are required to reduce these losses. The Researcher is particularly interested in determining the actions taken during fire situations from the viewpoint, thoughts, and psychological makeup of the firefighters who took those operations. The result of the study determines what part of the operation they perform well and what role they need to improve. Further, this would also support the BFP organization in general regarding the plans that would even strengthen the operations of BFP. The Community would also benefit from the improved procedure of the Bureau of Fire Protection in the National Capital Region.

The Preventive Theory highlights that real-world competence involves not only skills but also the ability to apply preventive actions at the community level. It emphasizes that effective prevention requires knowledge and expertise to design proactive strategies that stop incidents before they occur. This theory is especially relevant to the Bureau of Fire Protection (BFP), as it guides the selection of appropriate actions to prevent fire-related events in specific locations and helps explain the rationale behind these preventive measures.

The Management Theory contributes by improving communication and organizational efficiency. Understanding this theory helps streamline management goals and methods, making daily operations more effective. Within the BFP context, management plays a crucial role in setting, overseeing, and enforcing fire safety regulations. Strong leadership is essential for fire prevention, as it ensures that fire safety standards are properly implemented, protecting both property and lives during unexpected incidents.

The Theory of Service focuses on understanding the consistent and essential aspects of service delivery. Traditionally based on the implicit skills of experienced responders, this theory has evolved into two main approaches: a normative one, which offers tools and best practices for optimizing and improving services, and a descriptive one, which analyzes past and current practices in service delivery. For the BFP, this theory provides a foundation for improving service through learning and strategic planning.

Bringing these ideas together, the researcher developed the Theory of Effective Operation, which integrates concepts from the three theories. This new theory posits that successful fire mitigation relies not only on how operations are carried out but, more importantly, on the strength and effectiveness of the programs and plans in place. By focusing on operational quality and preparedness, the theory aims to reduce damage and enhance the overall response to fire emergencies.

2. Literature review

Firefighting is a demanding and dangerous profession, often described by firefighters themselves as "organized chaos." Regardless of their educational background or prior experience, firefighters display unwavering determination in the face of unpredictable emergencies, which can sometimes prevent them from responding to routine calls. The Bureau of Fire Protection (BFP), established under Republic Act 6975, embodies the principles of public involvement and the promotion of fire safety through prevention, suppression, and investigation. It also ensures the availability of emergency medical and rescue services. As stated in the BFP manual, the agency is tasked with training competent, responsible, and ethical firefighters who are committed to safeguarding lives, property, the environment, and the nation's cultural heritage, while upholding human rights.

In terms of fire prevention, regulations such as those outlined by the National Building Code Association in Kenyatta emphasize the necessity of incorporating fire safety mechanisms in all structures. These include the installation of sprinkler systems and smoke detectors in every room, all connected to a voice alarm system. This interconnected setup helps limit the spread of fire or smoke and keeps occupants safe and informed during emergencies (Nderitu, 2019). Fire safety should be integrated during both the construction and post-construction phases of a building. Research underscores the critical role of adherence to proper fire safety practices in achieving comprehensive fire protection. Compliance with existing regulations, like those from the National Fire Protection Association, strengthens the effectiveness of fire safety systems and helps mitigate risk (Onderi and Makori, 2017).

When it comes to fire suppression, findings from the University of Port Harcourt in Nigeria revealed only an average level of awareness and a notably low level of practical implementation among individuals. Issues included poor knowledge of emergency contact numbers, absence of fire safety strategies, unfamiliarity with different types of fire extinguishers, lack of equipment assessments, no investigation of prior incidents, and careless handling of electrical systems. These findings point to the need for a dedicated fire safety organogram to assign responsibilities and promote awareness of essential fire safety and prevention practices (Anyanwu, Onyewuchi, and Akaranta, 2021). Furthermore, achieving sustainable fire protection involves ensuring the availability of adequate facilities to support life safety, protect property, preserve heritage, and maintain operational continuity. Identifying gaps in fire service infrastructure is crucial in evaluating urban fire service adequacy and developing improvement strategies (Sabnani and Kapse, 2021).

In the realm of fire investigation and intelligence, O'Brien (2017) emphasized that a fire investigation's success depends heavily on the investigator's skills, the availability of necessary resources, and continuous inter-jurisdictional communication. His study acknowledged that fire investigations do not follow a simple, one-size-fits-all framework. Supporting this, Eric Stauffer (2020) pointed out that fire investigation is a particularly complex branch of forensic science due to its dual reliance on field and laboratory analysis. The difficulty is compounded by the fact that many fire investigators lack formal scientific training, which can limit the effectiveness of their scene examinations, even when a scientific approach is attempted.

Emergency medical and rescue services, another vital aspect of BFP operations, are most effective when well-coordinated with local and national agencies, NGOs, community groups, and private organizations. However, coordination remains a significant barrier to efficient emergency care delivery. Hamilton, Sodergard, and Liverani (2021) suggested that this challenge can be mitigated through structured registration systems that align resources with high-need areas. The operational efficiency of BFP in emergency scenarios is directly tied to public safety outcomes. Smith et al. (2018) found that rapid response times from BFP personnel greatly influence the success of emergency interventions, reinforcing the importance of ongoing training and preparedness. Furthermore, Johnson (2016) highlighted how collaboration and communication among emergency response agencies can enhance the overall impact of emergency efforts. Collectively, these studies offer valuable insights for optimizing BFP's performance in emergency medical and rescue services and ensuring more effective public protection during critical situations.

In a recent study conducted by Liu et al. (2020), researchers explored the impact of traffic congestion on fire truck response times in urban areas of China. Their findings revealed that strategically positioning fire stations and utilizing alternative routes led to considerable improvements in response speed and efficiency. The study underscores the vital role of addressing urban traffic congestion to ensure the timely arrival of emergency services, ultimately contributing to better outcomes during fire-related incidents. These results highlight the necessity for proactive traffic management strategies to safeguard public safety in densely populated areas.

Similarly, Jalili et al. (2019) focused their research on the influence of dispatch protocols on ambulance response times in Iran. Their study emphasized the importance of having clear, well-established procedures for prioritizing and assigning emergency calls. By analyzing various factors affecting response times, the researchers demonstrated that efficient dispatch protocols are critical in ensuring prompt and successful emergency medical services. Their findings advocate for continuous evaluation and refinement of dispatch systems to optimize emergency care and improve outcomes for individuals requiring urgent assistance.

Further emphasizing coordination in emergency services, Wood et al. (2017) examined the effects of inter-agency collaboration on emergency response in Australia. Their research highlighted the importance of seamless communication and coordinated efforts among emergency services, such as police, fire, and medical personnel. Effective teamwork and information sharing were shown to significantly enhance the efficiency and effectiveness of response operations. The study contributes valuable insight into emergency management, emphasizing the benefits of a unified approach during crisis situations.

The role of firefighter training in decision-making during emergencies was explored in a study conducted in the United Kingdom by Carless and Theobald (2018). Their findings demonstrated that continuous training significantly enhances firefighters' abilities to assess complex situations and respond effectively under pressure. The research underscores the importance of ongoing professional development to ensure that firefighters are well-prepared to make critical decisions when lives are on the line, making a strong case for sustained investment in training programs.

In the United States, McGrattan and Gottschlich (2017) examined the importance of experience in high-stress emergency scenarios. Their study revealed that experienced firefighters exhibited superior communication and

teamwork skills under pressure, leading to faster and more effective crisis responses. This highlights the critical role that accumulated field experience plays in ensuring the safety and effectiveness of emergency response operations.

Their research also extended to Sweden, where they investigated the impact of physical fitness on firefighter performance. It was found that physically fit firefighters could sustain demanding tasks for longer periods, contributing to safer and more effective emergency responses. These findings emphasize the need for rigorous fitness standards and ongoing physical conditioning as part of firefighter preparedness and operational readiness.

In another recent advancement, Lee et al. (2023) explored the use of drones in fire scene assessments in South Korea. Their study found that drones significantly enhanced situational awareness and safety for firefighters by providing real-time, comprehensive views of emergency scenes. This technology enabled better resource allocation and informed decision-making, demonstrating promising potential for improving emergency response effectiveness through technological innovation.

The strategic placement of fire stations is a key factor influencing emergency response times, as demonstrated by a study conducted by Canas et al. (2016) in Metro Manila. Their research highlighted the benefits of using a data-driven approach to optimize the distribution of fire stations, emphasizing how informed decision-making through data analysis and technology can lead to more efficient and effective emergency services. This approach ultimately enhances public safety by ensuring quicker access to affected areas during emergencies. Similarly, Adegboro and Ojoye (2019) addressed the challenges posed by rapid urban expansion in developing countries, suggesting innovative solutions such as strategically positioning fire sub-stations or deploying rapid response vehicles. These alternative strategies are presented as vital tools for addressing urban emergency response challenges and improving safety in densely populated areas.

Another critical factor in emergency response is the availability and quality of firefighting equipment. Zadeh et al. (2021) pointed out that having adequate resources is essential to managing a range of emergency situations effectively. They stressed that insufficient funding can result in outdated or malfunctioning equipment, which directly hinders the Bureau of Fire Protection's (BFP) capacity to respond quickly and efficiently. The importance of sufficient financial support for maintaining modern and functional firefighting gear was further emphasized by Cruz and Lagman (2018), who advocated for increased funding for the BFP. Their study argued that proper investment enables the procurement and maintenance of advanced equipment, including those needed for specialized incidents like hazardous material spills or rescues in confined spaces. Such investments are essential for enhancing the readiness and capability of firefighters to address complex emergencies.

Training and personnel development play a vital role in enhancing the Bureau of Fire Protection's (BFP) emergency response capabilities. Veszprémi and Pántya (2021) emphasized the need for continuous skill upgrades through training programs that incorporate modern firefighting techniques and technologies. These initiatives are essential to ensure that BFP remains responsive and adaptable to emerging hazards. Similarly, Baldovino et al. (2019) found that simulation exercises and scenario-based training significantly improve firefighters' decision-making, communication, and problem-solving abilities. Practicing in a controlled environment prepares personnel for the complexities of real emergencies, leading to more confident and effective responses.

Equally important is the presence of clear and well-defined emergency response procedures. Kahanji et al. (2019) highlighted that established protocols enable firefighters to act swiftly and decisively during the crucial early stages of an emergency. Well-structured procedures help reduce confusion, facilitate coordination, and ultimately save lives. Supporting this, Lit et al. (2018) recommended routine reviews and updates to emergency protocols especially those related to the Business Fire Plan (BFP) to ensure they remain aligned with best practices and capable of addressing new challenges. Regular updates equip response teams with the tools they need to handle diverse emergency situations more effectively.

Despite these best practices, fire incidents continue to pose a serious challenge in the Philippines, with significant impacts on socioeconomic development. One of the key barriers identified is the BFP's limited access to modern resources and technology. Zadeh et al. (2021) pointed out that outdated equipment and insufficient funding hinder BFP operations, leading to delays in response and increased damage during fire incidents. These limitations emphasize the urgent need for investment in equipment modernization and capacity-building initiatives to improve the overall effectiveness of the country's fire protection services.

Kumba (2017) explored the effectiveness of various fire protection systems and identified several critical issues affecting BFP services. These include both geographical location and the availability of fire safety equipment categorized

into active and passive measures. The study revealed that many fire disasters, particularly in academic institutions, were caused by the failure or absence of effective fire protection systems. In several cases, essential equipment was either not installed or not maintained properly, which meant it could not function reliably in emergencies. As a result, recurring structural fires were often attributed to faulty or entirely missing fire control devices, further underscoring the importance of proper equipment maintenance and installation in achieving fire safety goals.

Grinnel (2021) emphasized the urgent need for urban areas to prioritize the installation of essential fire protection tools such as alarms and first aid kits. He noted that life-saving equipment should be visible, accessible, and accompanied by public education on safety routines. Additionally, trained professionals must be equipped to use these tools effectively to safeguard both infrastructure and lives during emergencies.

The seriousness of the fire situation in the Philippines was highlighted by Kahanji, Walls, and Cicione (2019), who reported over 1,300 fire incidents between 2011 and 2019, resulting in thousands of deaths and over 4 billion pesos in property damage. Their findings revealed delays in BFP response times caused by the public's limited awareness of fire engine right-of-way and the aging condition of firefighting vehicles. These issues continue to undermine the agency's ability to respond efficiently.

Together, these studies reflect the complex challenges facing the Bureau of Fire Protection. Equipment shortages, outdated technology, logistical barriers, and low public awareness all contribute to delayed and less effective fire responses. Addressing these issues requires a holistic approach adequate funding, public education, modernized tools, and stronger coordination across sectors to develop a more resilient and responsive fire protection system in the Philippines.

Research into the BFP's program implementation has also revealed strengths and areas for improvement. In his thesis, Gandia (2018) assessed the Fire Prevention Program in Urdaneta City, focusing on enforcement and compliance with the Fire Code of the Philippines. The study found that both BFP personnel and residents rated fire safety inspections highly, especially regarding permit issuance and equipment installation. BFP personnel further confirmed a high level of adherence to the fire code, reflecting successful implementation in the area.

Likewise, Cervantes and Soriano (2013) evaluated the overall performance of BFP across the country. Despite efforts, including the enactment of RA 9514 (Revised Fire Code of 2008), fires remain one of the most frequent man-made disasters. Their study cited significant incidents such as a major fire in 2011 that displaced 3,000 households and pointed to widespread noncompliance with fire safety laws, particularly in cities like Baguio. They concluded that although the BFP has launched various public safety campaigns and strategies, further improvements are needed. These include enhancing firefighter efficiency, ensuring strict enforcement of fire regulations, and conducting regular evaluations of BFP programs. Their findings stress the importance of continuous development in fire safety operations and stronger accountability in enforcing fire protection policies.

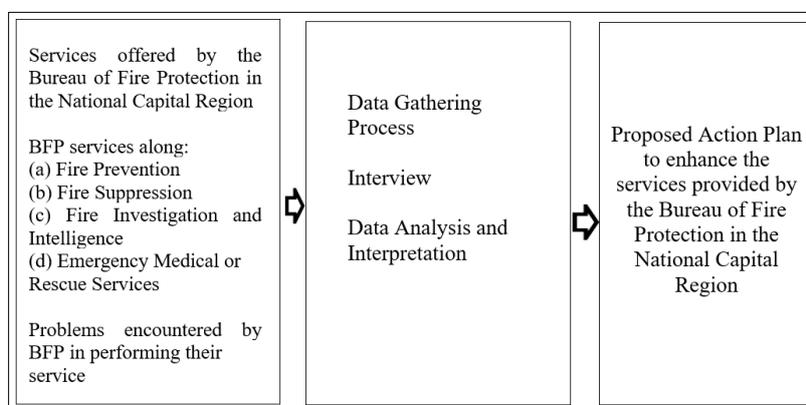


Figure 1 Paradigm of the Study

The study follows an Input-Process-Output (IPO) model, illustrated in Figure 1. The Input includes the services provided by the Bureau of Fire Protection (BFP) in the National Capital Region, such as Fire Prevention, Fire Suppression, Fire Investigation and Intelligence, and Emergency Medical or Rescue Services. It also identifies the challenges BFP encounters in delivering these services. The Process involves data collection through surveys and interviews, followed by statistical analysis. The Output is a proposed action plan aimed at improving BFP services in the NCR. This research

aimed to evaluate the scope and implementation of BFP services in NCR and determine the challenges faced during service delivery. It sought to answer what services are provided, how well they are implemented, what issues affect performance, and what improvements can be made. The study was guided by three hypotheses: that BFP offers a range of services in the NCR; that these services are not fully implemented; and that no significant problems are affecting BFP operations. These assumptions framed the study's analysis. The study benefits multiple stakeholders. For communities, it identifies causes of delays and aims to improve public safety. For LGUs, it offers recommendations on infrastructure improvements. For BFP personnel, it highlights areas for operational enhancement. Public Administration students can use the findings for academic insight, while future researchers may build upon its data and framework. The scope covers BFP operations in NCR from 2022 to 2024, focusing on four main services. Respondents included active BFP personnel and barangay officials/residents who had experienced fire incidents. BFP staff not involved in fire-related duties were excluded to ensure data relevance.

3. Methodology

3.1. Method of Research and Technique for Data Gathering

The researcher employed a mixed-method research approach, integrating both qualitative and quantitative designs to ensure a comprehensive understanding of the study's objectives. Data collection and analysis were conducted using document analysis and statistical data analysis. As noted by Bhandari (2020), qualitative research involves naturalistic inquiry aimed at gaining deep insights into social phenomena within their real-world context. Meanwhile, quantitative research provides objective data that can be measured and presented statistically (Williams, 2021). The study utilized document analysis as a systematic method for examining existing documentary evidence to answer key research questions. This process involved repeated reading, critical examination, and interpretation of relevant materials, allowing the researcher to extract meaningful insights and build empirical knowledge related to the Bureau of Fire Protection's services. These data were supplemented by responses from target participants to support the analysis and interpretation phase. For the qualitative aspect, document analysis was applied to address Problem Number 1, which focused on identifying the various services offered by the Bureau of Fire Protection in the National Capital Region. In contrast, the quantitative component—which included the use of Likert Scales and weighted mean computations—was used to respond to Problem Numbers 2 and 3. Specifically, Problem Number 2 involved assessing the level of implementation of services such as fire prevention, fire suppression, fire investigation and intelligence, and emergency medical or rescue services. Meanwhile, Problem Number 3 aimed to identify the problems encountered by the BFP in carrying out these services across NCR. Combining both qualitative and quantitative methodologies, the researcher was able to gain a well-rounded understanding of the BFP's operational effectiveness and the challenges it faces, thereby strengthening the validity and depth of the study's findings.

3.2. Sources of Data

There were two sources of data in this study: the primary source and secondary source. The primary source of data was taken from the interview and survey questionnaire to be administered to the respondents of the study. The secondary source of data was taken from books, journal articles, memoranda, theses and dissertations together with sources from the Internet.

3.3. Respondents of the Study

The sampling design that was utilized in this research was purposive sampling. It is designed for the BFP since they are determined based on their involvement in the services during fire incidents. Purposive sampling (also known as judgment, selective or subjective sampling) is a technique in which the researcher relies on their judgment when choosing population members to participate in the study (Business Research Methodology, 2022).

The researcher also employed the total enumeration sampling for the barangay officials. Total enumeration (or population) sampling is a type of sampling where the whole population of interest (i.e., a group whose members all share a given characteristic) is studied. It is most practical when the total population is of manageable sizes, such as a well-defined subgroup of a larger population (Economic Times, 2022).

Through the use of this method of sampling, the researcher was able to arrive at more conclusive results. The respondents were purposively identified and carefully selected to fit the criteria set. The findings of this research would be more appropriate for formulating conclusions when the respondents are appropriately selected and identified.

The respondents identified for this research undertaking are the key players in the services during fire incidents: the Fire Officers stationed in the different fire stations of the National Capital Region and the barangay officials of selected

localities. The respondents were chosen by their roles during the fire incidents in NCR. The BFP officers serve at the forefront of the operation and the barangay officials serve as the watchdogs or witnesses and are responsible for assisting the operations team in their jurisdiction. For this reason, they were chosen as respondents because they have a full view, and first-hand experiences of the operations and that authority is given to them to undertake the actions and functions associated with their roles.

The fire officers who served as the respondents were those experienced officers who handled the operations and had the opportunity to analyze the operations that were conducted, known as the Intelligence and the Investigation, and since they are deputized to plan and implement strategic policies, programs, and projects on prevention and control of fire.

Additionally, to avoid biases in the responses, 360 barangay officials from the latest fire incident were included as respondents since they witnessed these operations firsthand, and 490 BFP Personnel since they have enough grasping of what transpires in a certain operation.

3.4. Procedure of the Study

The study was conducted within selected local fire stations and barangays across the National Capital Region, with the primary aim of identifying and evaluating the services provided by the Bureau of Fire Protection (BFP) personnel in four critical operational areas: Fire Prevention, Fire Suppression, Fire Investigation and Intelligence, and Emergency Medical or Rescue Services. To gather relevant data, the researcher developed a structured research instrument in the form of a survey questionnaire. This instrument underwent a validation process conducted by qualified personnel from the National Headquarters of the BFP to ensure its reliability and appropriateness for the study.

The survey instrument was composed of two main parts. Part I focused on identifying the BFP's services, using a checklist format that covered the four key operational areas mentioned above. Responses were measured using a 4-point Likert scale to determine the level of implementation for each service. Part II also used a checklist format, wherein respondents indicated the common problems encountered by the BFP in carrying out their responsibilities. After obtaining the necessary approvals, the researcher submitted formal letters to barangay officials to request permission for distributing the questionnaires. Upon approval, the researcher proceeded to administer the surveys, providing respondents with an informed consent form and a brief explanation of the study's objectives.

Respondents were given sufficient time to complete the questionnaires, after which all data were collected and submitted to an authorized statistician for processing. A 100% return rate of the distributed questionnaires was ensured, making the dataset comprehensive and reliable. The data were then subjected to statistical treatment, tabulation, and detailed analysis, which supported the interpretation of findings and their theoretical implications.

For the analysis and interpretation of data, the researcher employed both documentary analysis and quantitative statistical methods. Specifically, the second research question, which examined the level of service implementation, utilized the weighted mean to measure and compare responses. The weighted mean method allowed the researcher to assess service delivery levels accurately across the different categories by accounting for the varying degrees of importance among responses.

To guide the interpretation of responses, a 4-point rating scale was used, with ratings defined as follows: 4 for "Highly Implemented (HI)," 3 for "Partly Implemented (PI)," 2 for "Barely Implemented (BI)," and 1 for "Not Implemented (NI)." The descriptive interpretation of scores followed a calculated range: scores from 3.25 to 4.00 were categorized as Highly Implemented, 2.50 to 3.24 as Partly Implemented, 1.75 to 2.49 as Barely Implemented, and 1.00 to 1.74 as Not Implemented. This system allowed for a clear and consistent evaluation of the data, helping to draw meaningful conclusions about the level of service implementation and the operational challenges faced by the BFP within the NCR.

4. Results and discussion

4.1. Services Offered by the Bureau of Fire Protection

4.1.1. In the National Capital Region

The Bureau of Fire Protection offered four services. The first service is the Fire Prevention Services, which focuses on fire safety inspection of buildings and establishments, fire safety awareness campaigns, and fire brigade organization. Building construction and post-construction phases should both address the execution of fire safety procedures. This

implies that correct fire safety practices are important in accomplishing fire safety goals. Furthermore, the fire safety processes are typically improved by absolute conformity with current fire safety regulatory standards, including the National Fire Protection Association as the common legislation to execute procedures available to comply.

Second is the Fire Suppression Services which take place in dangerous, time-sensitive environments worldwide. It is carried out at all hours of the day and night, in all kinds of weather, and usually in new settings. The work is mentally stressful and physically exhausting. The course of the operation and the result of the incident may be negatively impacted by a little delay in operations, particularly when the initial fire apparatus is arriving and positioning. This implies that in order to maintain sustainability through life safety, property protection, operational continuity, environmental protection, and heritage preservation, adequate fire service facilities must be provided. Additionally, in terms of assessing sustainable urbanization with the adequacy of fire service provision, it is important to know the substantial service gaps for enhancement in terms of fire service facilities.

The third is the Fire Investigation and Intelligence Services, which examine the physical characteristics of a fire site where assigned personnel gather tangible evidence. The evidence will be analyzed to determine whether the fire's origin was accidental or intentional. When examining the area, investigators can discover evidence like accelerants, tampered utilities, and particular burn patterns that could point to criminal conduct. This implies that the investigator's skill and resource availability, in addition to continuous communication amongst jurisdictions, are the most crucial factors in a fire investigation. It is also a difficult area of forensic sciences due to the fact that it involves both laboratory and scene examinations.

Lastly, the Emergency Medical and Rescue Services provide emergency medical care. When an occurrence results in serious illness or injury, EMS concentrates on the patient's emergency medical care. This implies that Emergency Medical and Rescue must be the most readily identified when emergency vehicles or helicopters are seen responding to emergency occurrences, but it involves much more than a ride to the

hospital. It is a system of coordinated emergency medical care and response encompassing many people and organizations. Furthermore, a big barrier to effective care delivery is a lack of coordination, which can be addressed by implementing registration systems that allocate and match resources to areas of greatest need.

4.2. Level of Implementation of the Services of the Bureau Of Fire Protection in the National Capital Region

4.2.1. In Terms of Fire Prevention

Table 1 presents the level of implementation of the services of the Bureau of Fire Protection in the National Capital Region in terms of Fire Prevention. There are four (4) indicators under this area that generated an average weighted mean of 3.68 for BFP personnel (Highly Implemented) and 3.22 for Barangay officials (Partly Implemented), respectively. The mean score for both respondents generated 3.46 described as Highly Implemented.

Table 1 Level of implementation of the services of the bureau of fire protection in the national capital region in terms of fire prevention n = 850

Indicator	BFP n=490	Brgy Officials n = 360	AWM	DESCRIPTIVE RATING
Inspection of the buildings/structures before giving a Fire Safety Certificate	3.89	3.33	3.61	Highly Implemented
Conduct seminars and drills about fire safety and awareness.	3.89	3.30	3.60	Highly Implemented
Coordination and collaboration with other agencies such as schools and NGOs in implementing programs and projects on fire prevention at the barangay level	3.40	3.47	3.44	Highly Implemented
Evaluate the blueprint/plan of every structure in the barangay	3.57	2.80	3.18	Partly Implemented
Overall Average Weighted Mean	3.69	3.22	3.46	Highly Implemented

Legend: 3.25 - 4.00 Highly Implemented (HI); 2.50 - 3.24 Partly Implemented (PI); 1.75 - 2.49 Barely Implemented (BI); 1.00 - 1.74 Not Implemented (NI)

As shown in Table I, the BFP personnel and barangay officials indicated that the fire prevention services are Highly Implemented in the National Capital Region. From among the responses of the BFP personnel, inspection of the buildings/structures before giving a Fire Safety Certificate and Conduct seminars and drills about fire safety and awareness yielded the highest weighted mean score of 3.89. This was followed by the indicator on evaluate the blueprint/plan of every structure in the barangay with 3.57 weighted mean score while coordination and collaboration with other agencies such as schools and NGOs in implementing programs and projects on fire prevention at the barangay level shows 3.40 weighted mean score. This is a manifestation that the BFP is holding to its mandate to enforce the laws and procedures relative to fire protection. A Fire Safety Inspection Certificate, or FSIC, is a document issued to business establishments by the Bureau of Fire Protection (BFP) attesting their structures and facilities have been duly inspected and compliant with the fire safety standards under the Fire Code of the Philippines and other regulations. As provided in the Fire Code of the Philippines (RA 9514), the BFP shall “designate a fire safety inspector through his or her duly authorized representative, who shall conduct an inspection of every building or structure within his area of responsibility at least once a year and every time the owner, administrator, or occupant shall renew his or her business permit or permit to operate. No occupancy permit, business or permit to operate shall be issued without securing a Fire Safety Inspection Certificate (FSIC) from the Chief, BFP, or his or her duly authorized representative (Section 5(g)).”

Conducting seminars and drills on fire safety and awareness is also one of the activities of the BFP under their OPLAN LIGTAS NA PAMAYANAN. Oplan Ligtas Na Pamayanan is the BFP’s response to the ever-growing demand for a more adoptive, comprehensive and immersive fire protection program for the communities, rural and urban villages and barangays. The main objectives are to establish strong partnerships, through agreements, between local government units in enforcing fire-related laws; and Encourage communities to develop their own Community Fire Protection Plan based on the standard parameters.

Evaluate the blueprint/plan of every structure in the barangay garnered a weighted mean of 3.57 described as Highly Implemented stipulating that the BFP is ensuring that they are aware of the type of structures being erected and constructed in every barangay. Lastly, coordination and collaboration with other agencies such as schools and NGOs in implementing programs and projects on fire prevention at the barangay level yielded the lowest weighted mean score of 3.40. This implies that the BFP admitted is still lacking in linkage and network with the NGOs, but they believe that they are doing very well with schools as the BFP has the project of Kiddie Fireman as part of their OPLAN LIGTAS NA PAMAYANAN. The overall average weighted mean score from the responses of the BFP personnel is 3.69 with a descriptive rating of Highly Implemented.

On the other hand, the Barangay Officials had the highest weighted mean score of 3.47 on the indicator regarding the coordination and collaboration with other agencies such as schools and NGOs in implementing programs and projects on fire prevention at the barangay level, the indicator that was scored lowest by the BFP. It appears that the barangay officials can only see what is happening in their respective localities leading to this indicator topping their list. The Barangay officials, however, validated that the BFP is conducting collaboration and networking activities with them relative to the programs and projects on fire prevention as the barangays are usually prone to fire incidents especially those areas with houses made up of light materials.

Next indicator on inspection of the buildings/structures before giving a Fire Safety Certificate produced a weighted mean of 3.33 described as Highly Implemented is a reflection of how the barangay officials validate the performance of the BFP in the NCR in ensuring the compliance of the owners of the buildings and structures prior to their construction. Further, conduct of seminars and drills about fire safety awareness yielded a weighted mean of 3.30 manifesting the observation of the barangay officials in the presence of the BFP in conducting fire safety awareness in their respective barangays. Lastly, the indicator evaluate the blueprint/plan of every structure in the barangay had the lowest weighted mean of 2.80 given by the Barangay officials. This could probably be due to the fact that this indicator is an activity that is known only to the BFP personnel and not cascaded down to the barangay officials. The blueprint/plan of the structures are not submitted to the barangays but are kept in the local fire stations for reference purposes.

Overall, the services offered by the BFP, such as the Inspection of the buildings/structures before giving a fire safety certificate, got the highest average weighted mean of 3.61 with a verbal description of Highly Implemented as the BFP provides fire safety inspection that could help citizens on how to deal and prevent fire emergencies in their establishments if a case occurs. Meanwhile, the evaluation of the blueprint/plan of every structure in the barangay got the lowest mean of 3.18 according to the BFP Personnel and Barangay Official with a verbal description of Partly Implemented.

This means that according to the observation of the BFP Personnel and Barangay Officials, the Fire Prevention services of the Bureau of Fire Protection are conducted and seriously carry out the procedures to ensure that the community is

protected against fire incidents. Fire protection is important because it helps ensure the safety of people and structures. It can decrease fire spread and damage, reduce the likelihood of injuries, and provide safe evacuation routes.

While the most important component of fire protection is saving lives, it also plays a significant role in protecting businesses and other organizations from significant structure and asset damage, as well as financial and other losses from interrupted business operations. Fire protection also has important implications for protecting the environment from dangerous chemical spills or other damage.

While some might shrug off the role of fire protection, thinking, “We’ve never had a fire, why should we?” The reality is, even with the best-laid plans, fires still happen, which makes fire protection increasingly important. It is a practice that should not be overlooked.

For fire industry professionals, fire protection is more than preventing fires. It is about protecting lives, facilities, and in some cases, the economic wellbeing of a local business or community. In many instances, fire protection companies work with local fire departments to keep their jurisdictions safe. Think of fire protection as a shield that protects everyone and everything from the devastating effects of a fire. That includes early-warning devices, fire suppression, fire-resistant and fire-proof construction, education, training, planning, processes, and more (InspectPoint, 2023).

4.2.2. In Terms of Fire Suppression

Table 2 reflects the level of implementation of the services of the Bureau of Fire Protection in the National Capital Region in terms of Fire Suppression with an overall average weighted mean of 3.66 described as Highly Implemented generated by four (4) indicators.

Table 2 Level of implementation of the services of the bureau of fire protection in the national capital region in terms of fire suppression n = 850

Indicator	BFP n=490	Brgy Officials n = 360	AWM	DESCRIPTIVE RATING
Respond immediately to fire call duty operation	3.91	3.72	3.82	Highly Implemented
Check the fire extinguisher and other tools for fire suppression in every building/structure.	3.85	3.75	3.80	Highly Implemented
Monitor the fire trucks, firefighting tools, and equipment regularly.	3.61	3.72	3.67	Highly Implemented
Conduct pre-fire planning activities to mitigate fire incidents.	3.28	3.47	3.38	Highly Implemented
Overall Average Weighted Mean	3.66	3.66	3.66	Highly Implemented

Legend: 3.25 – 4.00 Highly Implemented (HI); 2.50 – 3.24 Partly Implemented (PI); 1.75 – 2.49 Barely Implemented (BI); 1.00 – 1.74 Not Implemented (NI)

As shown in Table 2, the BFP personnel and barangay officials indicated that the fire suppression services are Highly Implemented in the barangays of the National Capital Region. This only means that the BFP personnel are actively executing all fire suppression services in the community/barangays. Respond immediately to fire call duty operation got the highest average weighted mean of 3.82 based on the responses provided by the BFP personnel (WM=3.91) and Barangay Officials (WM=3.72). Meanwhile, Conducting pre-fire planning activities to mitigate fire incidents with a mean of 3.38 got the lowest mean or implementation according to the respondents although with a verbal description of Highly Implemented.

Relatively, Check the fire extinguisher and other tools for fire suppression in every building/structure was 2nd highest scoring indicator for the BFP personnel with a weighted mean of 3.85 while the same indicator was top of the list of the Barangay Officials with a weighted mean of 3.75. The fire extinguisher is considered as the most common fire suppression tool as it is a strict requirement during the conduct of monitoring by the BFP. Fire extinguishers also come in different sizes and in different forms depending on what type of fire needs to be put out.

The indicator on monitor pre-fire planning activities to mitigate fire incidents showed weighted mean score of 3.61 for the BFP and 3.72 for the Barangay Officials. Pre-fire planning is a joint venture between emergency services personnel

and the occupants/owners of the property. Pre-fire planning can provide valuable information which can improve the ability of firefighters to respond effectively to a fire or other emergency. Pre-fire planning can make the difference between minimal and major damage. In an emergency, every second counts, and everything from training to knowing the best route to the scene of a fire can save precious seconds, which can mean saving life, limb, and property. The plan addresses vital fire protection concerns, such as: building layout, access, contents, construction details, types and locations of built-in fire protection devices. It includes all data which can have an impact on decisions or actions taken during an emergency. Pre-fire plans also will be vital in the safety/rescue of a firefighter should he/she have an emergency during the incident.

It is very evident on the results in the table that all of the respondents find the services of Fire Suppression to be Highly Implemented in all of the four (4) indicators. Fire suppression is the process of extinguishing or controlling fires, preventing their spread and minimizing damage. It is a crucial aspect of fire safety and protection in various settings, including commercial buildings, industrial facilities, residential properties, and vehicles. Fire suppression systems are designed to extinguish, control, or prevent fires from spreading, thereby safeguarding people, property, and assets.

Fire Suppression Systems are designed to extinguish the fire at the source and prevent its spread. Fire suppression systems can be activated manually or automatically, often triggered by heat, smoke, or a combination of both. Various agents are used to suppress fires, including: Water: A common and effective agent for many types of fires, often used in sprinkler systems; Gas: Inert gases like CO₂ are used to displace oxygen and extinguish fires, though they can be dangerous to humans in high concentrations; Chemicals: Dry or wet chemicals can be used to extinguish fires, particularly those involving flammable liquids or grease; and Clean Agents: These agents are designed to leave no residue after discharge, making them suitable for sensitive equipment and areas.

There are various type of Fire Suppression Systems, such as: Fire Sprinkler Systems: These systems use water to control and extinguish fires, often activated by heat or smoke; Gas Suppression Systems: These systems use gases like CO₂ or clean agents to suppress fires; Dry Chemical Suppression Systems: These systems use dry chemicals to extinguish fires, particularly those involving flammable liquids; Wet Chemical Suppression Systems: These systems use liquid agents to extinguish fires, particularly those involving grease; and Clean Agent Fire Suppression Systems: These systems use agents that leave no residue after discharge, making them suitable for sensitive equipment and areas (ScienceDirect.com, 2022).

4.2.3. In Terms of Fire Investigation and Intelligence

The level of implementation of the services of the Bureau of Fire Protection in the National Capital Region in terms of Fire Investigation and Intelligence is displayed in Table 3. There are four (4) indicators that yielded an overall average weighted mean of 3.67 with a descriptive rating of Highly Implemented.

Table 3 Level of implementation of the services of the bureau of fire protection in the national capital region in terms of fire investigation and intelligence n = 850

INDICATOR	BFP n=490	Brgy Officials n = 360	AWM	DESCRIPTIVE RATING
Investigate the origin of a fire incident.	3.89	3.75	3.38	Highly Implemented
Report and record the facts of the incident in an organized and concise format.	3.85	3.52	3.67	Highly Implemented
Collect physical evidence from the scene to help in determining whether the fire was accidental or deliberate.	3.89	3.61	3.80	Highly Implemented
File a case to the perpetrator of the fire incident if the cause is intentional.	3.69	3.63	3.82	Highly Implemented
Overall Average Weighted Mean	3.83	3.62	3.67	Highly Implemented

Legend: 3.25 – 4.00 Highly Implemented (HI); 2.50 – 3.24 Partly Implemented (PI); 1.75 – 2.49 Barely Implemented (BI); 1.00 – 1.74 Not Implemented (NI)

The Bureau of Fire Protection recognizes the emerging challenges it faces in fulfilling its mandate due to the complex nature of the present time. As the agency strives to become a modern fire service according to its goals, it views these challenges as a chance to enhance current policies for better performance in light of the circumstances.

As can be gleaned from the table, all of the four (4) indicators were described as Highly Implemented. According to the BFP personnel, they highly implement the services relative to investigate the origin of a fire incident and collect physical evidence from the scene to help in determining whether the fire was accidental or deliberate yielded the same weighted mean score of 3.89. The purpose of fire investigation and intelligence was to ascertain that the cause of fire is being determined and communicated to the victims. Investigating the origin of a fire incident will eventually identify the cause and will rule out foul play such as arson. Consequently, in order to properly determine the origin of fire, a skillful investigator who is highly knowledgeable on how to secure the correct physical evidence to support the conduct of the fire investigation and determine the possible perpetrators.

File a case to the perpetrator of the fire incident if the cause is intentional was bottom of the list for the BFP personnel although with a high weighted mean score of 3.69 while the indicator on report and record the facts of the incident in an organized and concise format was lowest for the Barangay officials with a weighted mean of 3.52. This could probably be due to the fact that in some barangays, they have a record of the fire incidents that happen in their locality. However, it is the responsibility of the BFP to initiate the preparation of fire incident reports using the format given by Higher Headquarters.

As further shown in Table 3, the BFP personnel and barangay official indicated that the fire investigation and intelligence services are Highly Implemented. The services offered by the BFP such as investigating the origin of a fire incident got the highest weighted mean of 3.82 and it is interpreted as Highly Implemented. The said indicator is important to ensure and properly determine what and where the fire started. Meanwhile, the evaluation of filing a case to the perpetrator of the fire incident if the cause is intentional got the lowest mean of 3.66, which is based on the respondents.

The computed grand mean of the assessment of the services of the Bureau of Fire Protection in terms of Fire Investigation and Intelligence according to the BFP Personnel and Barangay Officials is 3.72 with a verbal description of highly implemented.

Akin to the BFP organization, fire and arson investigation and the necessary judicial procedures that ensue, are likewise dynamic. The developments warrant a review and revision of the operational concepts in the field of fire and arson investigation, with due consideration of the factual circumstances confronting BFP Fire and Arson Investigators (FAI) and the acknowledgment of the authority of the BFP Offices having jurisdiction over a fire case.

In this light, the BFP can look forward to a strengthened and improved performance of its investigative mandate with the timely revision of the SOP to conform with the demands of the present times.

4.2.4. In Terms of Emergency Medical or Rescue Services

Table 4 shows the level of implementation of the services provided by the Bureau of Fire Protection in terms Emergency Medical or Rescue Services. The history of emergency services in the Philippines has evolved over time, starting with traditional methods in pre-colonial times to a modern, well-organized system. During the colonial period, Western medical practices and ambulance services were introduced. Today, technology and collaboration have improved emergency services, but challenges remain in providing effective aid in remote and disaster-prone areas.

Emergency Services are providers that are tasked with responding to sudden, urgent, and often dangerous situations. Whether it be a medical or car accident; or a natural disaster like a flood. They provide timely services to mitigate the impact the incidents have had on individuals and societies.

Emergency Services include paramedics or EMTs, fire-fighters, search and rescue teams and departments, military services. These heroic professionals risk their lives in providing safety to dangerous situations so life can return to normalcy for those impacted by these catastrophic events.

Table 4 Level of implementation of the services of the bureau of fire protection in the national capital region in terms of emergency medical or rescue services n = 850

INDICATOR	BFP n=490	Brgy Officials n = 360	AWM	DESCRIPTIVE RATING
Provide appropriate medical care throughout the journey.	3.57	3.66	3.62	Highly Implemented
Take patients to the nearest medical treatment facility.	3.32	3.80	3.56	Highly Implemented
Provides appropriate and timely interventions to treat the patient at the scene of the incident without doing further harm.	3.42	3.63	3.52	Highly Implemented
Load the patient in a suitable transport	3.18	3.69	3.44	Highly Implemented
Overall Average Weighted Mean	3.37	3.70	3.54	Highly Implemented

Legend: 3.25 – 4.00 Highly Implemented (HI); 2.50 – 3.24 Partly Implemented (PI); 1.75 – 2.49 Barely Implemented (BI); 1.00 – 1.74 Not Implemented (NI)

As shown in Table 4, the BFP personnel and barangay official indicated that the emergency medical and rescue services are Highly Implemented in the National Capital Region with an overall average weighted mean of 3.54. It can be seen that the overall average weighted mean of the Barangay Officials is higher than the rating given by the BFP personnel under this area.

In all of the four (4) indicators, the weighted mean scores of the Barangay Officials were higher than the ratings given by the BFP personnel. This could probably be due to the fact that not BFP personnel were involved in the Emergency Medical and Rescue Services as there is a separate specialized unit who is handling medical response.

Provide appropriate medical care throughout the journey got the highest weighted mean of 3.62, which had an interpretation of Highly Implemented. The said indicator is important because necessary care helps attain the desired result and prevents adverse events. Meanwhile, loading the patient in the suitable transport got the lowest mean of 3.44 with a verbal description of Highly Implemented. The computed overall average weighted mean of the assessment of the services of BFP in terms of emergency medical and rescue is 3.54 with a verbal description of Highly Implemented.

This means that according to the observations of the respondents, the emergency medical and rescue services of the Bureau of Fire Protection in NCR are regularly executed when the need arises. The Bureau of Fire Protection (BFP) is a Philippine government agency responsible for fire protection and firefighting services in the country. The BFP was created in 1991 through Republic Act 6975, which consolidated the various firefighting units under a single.

The main purpose of the BFP is to provide efficient and effective fire protection and firefighting services. It was to ensure the safety of the Filipino people and their properties. The BFP operates under the Department of the Interior and Local Government (DILG) and has a nationwide presence. There were fire stations located in major cities and municipalities across the country.

The BFP is also responsible for fire prevention, fire investigation, and the provision of fire safety education to the public. With its mission to protect lives and properties from fire, the BFP is an essential part of the Philippine emergency services network. They provide critical support to communities in times of crisis. The Bureau of Fire Protection (BFP) in the Philippines plays a crucial role in emergency response services. The BFP is equipped to carry out emergency rescue operations, including search and rescue operations in the aftermath of natural disasters and other emergencies.

The current state of Emergency Services in the Philippines is concerning. As a nation considered to be both prone to natural disasters and heavily populated. These services are essential for responding quickly and efficiently to the health and safety needs of Filipinos.

Unfortunately, much remains to be done in terms of infrastructure investment, and improved inter-agency communication. Effectively allocating resources in order to create an environment where citizens can rest assured that emergency service providers will be available when needed. There is also a lack of financial resources allocated for training and equipping first responders.

These shortcomings have resulted in a situation where Filipino citizens often wait hours or even days for aid. The Philippine government must prioritize Emergency Services now if they are to provide the safe environment that Filipinos deserve.

4.3. Problems encountered by the Bureau of Fire Protection in performing their Services

The table below presents the problem encountered by the BFP in performing their services. The problems encountered by the BFP were ranked from one to eight in terms of seriousness.

Table 5 Problems encountered by the bureau of fire protection in performing their services at the national capital region n = 850

Indicator	BFP n=490		Brgy Officials n = 360		TOTAL N=850	
	f	%	f	%	f	%
Lack of resources and technological advancements in fire fighting	470	95.92	190	52.78	660	77.65
Lack of community awareness regarding the importance of giving priority to fire engines and rescuers.	220	44.90	230	63.89	450	52.94
Insufficient number of BFP personnel.	160	32.65	120	33.33	280	32.94
Difficulty in accessing fire scene	60	12.24	200	55.55	260	30.59
Proper equipment was not installed to guarantee that they were always fully operational.	50	10.20	120	33.33	170	20.00
Lack of BFP personnel training	20	4.08	120	33.33	140	16.47
Inadequate evacuation sites for victims of fire	20	4.08	110	30.55	130	15.29
Social factors such as fire incident reports to firefighters	20	4.08	100	27.78	120	14.12

The indicator "Lack of resources and technological advancements" ranked first for all the respondents and the BFP personnel but not for the Barangay officials. This implies that lack of resources and technological equipment continues to haunt the Bureau of Fire Protection (BFP) in their bid to suppress fire incidents in the community/barangays. The BFP personnel are the first individuals who can attest to the scarcity of resources as they are the users of such technological firefighting facilities. There are still local fire stations in the National Capital Region that have outdated fire trucks and firefighting facilities. Even fire hydrants are not being attended to very well.

The lack of community awareness regarding the importance of giving priority to fire engines and rescuers and insufficient number of BFP personnel is another problem as it plays a vital role in order to arrive and mitigate the fire faster. These indicators are hindering the delivery of quality service to the community. In previous fire incidents, the high casualty and high cost of damage to properties caused by fires were attributed to the narrow passage for fire trucks in communities and residential areas. There were also occasions when fire trucks have to respond to a fire incident and were caught in traffic because private vehicles and motorists do not give way for the trucks to pass through. When the firefighters arrive at the fire scene, there are residents who steal the fire hoses and harass the fire responders wanting them to give attention in putting out the fires in their own houses first. The lack of BFP personnel is also haunting many fire stations in the National Capital Region as the organization has just started its professionalization program for hiring and recruitment of their personnel.

Difficulty in accessing the fire scene is also a complication as it reduces productivity and increases difficulties in facing a scene. Many times, because of standby and public observers, the BFP personnel are hindered in providing immediate access to the fire scene because the victims are trying to salvage their properties from the burning house or facility. Their presence inside the fire scene also tampers with the gathering of pertinent information to determine the cause and origin of the fire.

When the proper equipment was not installed to guarantee that they were always fully operational, it is an issue especially during emergencies where most of the firefighters are in need of equipment. Inadequate evacuation sites for the victims are also a problem after a fire incident because there are many people who do not have a place to stay. The local government units are tasked to identify evacuation areas for their constituents in the event of any calamity such

as earthquake, fire, flooding. More often than not, the public elementary schools are being used as evacuation centers or even covered courts. However, in some areas of NCR, there are still dearth of evacuation sites/areas because of the congested residential areas that there are no open spaces where victims of disasters and calamities can be evacuated.

Lastly, the social factors such as fire incident reporters to firefighters wherein without them, firefighters would not be aware of a certain fire incident. Many of the respondents do not consider this as a significant problem as there is a BFP hotline in every local fire station where residents can report fire incidents.

4.4. Proposed Action Plan

The proposed action plan presents a comprehensive set of programs designed by the researcher to address the core challenges encountered by the Bureau of Fire Protection (BFP) in the National Capital Region (NCR). These challenges span across the key service areas of fire prevention, fire suppression, fire investigation and intelligence, and emergency medical and rescue services. The action plan identifies specific areas of concern and outlines targeted strategies and activities, supported by involved agencies, time frames, and means of verification. Its overall aim is to provide clear, actionable solutions to help BFP personnel overcome operational deficiencies and improve service delivery to the community.

One major area of concern identified is the lack of adequate training among BFP personnel. To address this, the action plan recommends conducting specialized training programs in areas such as fire investigation and emergency medical response. These trainings would be organized quarterly in partnership with agencies such as the Department of Health (DOH) and the National Disaster Risk Reduction and Management Council (NDRRMC).

Another key concern is the difficulty in assessing fire incidents, particularly in determining the point of origin. To improve analytical capabilities, the plan includes semi-annual simulation exercises in collaboration with the National Fire Training Institute and the Office of Civil Defense (OCD). These exercises aim to evaluate and enhance the on-ground assessment skills of BFP responders.

The issue of insufficient BFP personnel is also a significant challenge. To address this, the plan proposes coordination with the Department of the Interior and Local Government (DILG) and the Department of Budget and Management (DBM) to increase recruitment quotas and meet the standard firefighter-to-population ratio of 1:2000. This initiative would be conducted semi-annually to ensure sustained personnel growth.

A lack of modern firefighting resources and equipment is another persistent problem. To upgrade current facilities, the action plan includes annual coordination efforts with local government units (LGUs) and non-governmental organizations (NGOs) to procure or receive donations of advanced firefighting tools.

Regarding community welfare, the plan also recognizes the need for more evacuation sites for fire victims. Annually, the BFP will establish linkages with private property owners and facility managers to designate emergency shelters. This initiative is to be carried out in partnership with barangay officials.

Community awareness is another focal point of the action plan. There is a noted lack of understanding among the public regarding the need to prioritize fire engines and rescuers on the road. To remedy this, quarterly "pulong-pulong" community meetings and educational campaigns will be held in partnership with DILG, the Department of Education (DepEd), the Commission on Higher Education (CHED), and the Land Transportation Office (LTO).

The plan also addresses the issue of improperly installed or non-functional equipment. To ensure consistent functionality, the BFP will coordinate with NGOs for potential equipment donations and appoint trained supply officers at each fire station to manage and protect the agency's assets. This will be reviewed annually.

Finally, the action plan seeks to make the BFP more accessible to the public. It proposes the semi-annual distribution of flyers and posters in barangay halls that provide emergency hotline numbers, increasing public awareness and ensuring that assistance is just a call away. Overall, this action plan provides a structured, strategic approach to resolving the BFP's operational issues. With clear objectives, partnerships, and timelines, it lays a foundation for sustainable improvements in fire safety and emergency response throughout the National Capital Region.

5. Conclusions and Recommendations

Based on the findings of the study, several important conclusions have been drawn regarding the services provided by the Bureau of Fire Protection (BFP) in the National Capital Region (NCR). Firstly, the study confirms that the Bureau offers a wide range of services across the NCR, thus supporting the acceptance of the corresponding hypothesis. Secondly, it was found that BFP's fire-related services are highly implemented in all areas covered by the study. However, despite this strong implementation, the hypothesis suggesting otherwise is not accepted. Lastly, the study identified specific problems that hinder the efficiency of BFP services, leading to the non-acceptance of the related hypothesis.

In response to these conclusions, a number of recommendations are proposed to address the challenges identified. Central to these is the application of the Preventive Theory, which emphasizes that fire incidents often arise from insufficient knowledge and skills in fire prevention at the community level. Enhancing awareness and preventive actions among citizens is therefore essential. The study also highlights the importance of specialized knowledge and expertise in designing effective prevention strategies to reduce fire incidents in specific areas. The Theory of Effective Operation, introduced by the researcher, underscores that successful fire suppression depends not only on operational tactics but also on the strength and effectiveness of pre-established programs and plans aimed at minimizing fire damage.

Additionally, the researcher points out the critical role of Fire Investigation and Intelligence, stating that the success of investigations largely relies on the skills of investigators and the resources available to them in determining the cause of fire incidents, including whether they are intentional. Another key area for improvement is the Emergency and Medical Rescue Services offered by BFP in NCR. The study recommends increasing the number of personnel and establishing more evacuation sites to better accommodate fire victims. Moreover, the Theory of Service is emphasized, which suggests that having access to relevant knowledge and appropriate tools is essential in delivering, optimizing, and continuously improving public services based on past and current experiences.

Effective management also emerged as a crucial factor, aligning with the Management Theory which posits that strong leadership and organization are fundamental in both preventing fire outbreaks and protecting lives and property during emergencies. Through positive reinforcement and strategic planning, the likelihood of encountering operational challenges can be significantly reduced. In light of this, the researcher recommends that the BFP adopt an action plan focused on strategic implementation. This proposed plan aims not only to improve current services in the NCR but also to be scalable for use in other regions. Through inter-agency collaboration and the adoption of effective strategies, the Bureau's services can be further enhanced to meet the growing demands of fire protection and emergency response

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

- [1] Anyanwu B. Onyewuchi O, and Akaranta. (2021). Fire Safety Management in a Typical Higher Institution in Nigeria New Ideas Concerning Science and Technology Vol.6. Retrieved from <http://stm.bookpi.org>
- [2] Balahadia, F., and Trillanes, A. (2017). Improving fire services using Spatio-temporal analysis: Fire incidents in manila. IEEE TENSYP 2017, 1–5. DOI: 10.1109/TENCONSpring.2017.8070013
- [3] Bureau Of Fire Protection (2021). The LawPhil Project: Philippine Law and Jurisprudence Data Bank. Retrieved from https://lawphil.net/statutes/repacts/ra2021/ra_11589_2021.html
- [4] Bureau of Fire Protection Operational Procedures Manual, 2015. Retrieved Memorandum Circular No. 2008-07 – Prescribing Policies and Guidelines on BFP EMS Operations
- [5] Canas, et.al., (2006) “Firefighting Capability of Libmanan Fire Station”, Camarines Sur, Philippines. Fire Investigation. (2011, March 24). Available: <https://www.fire safe.org.uk/fire-investigation/>
- [6] Caulfield, J. (2019). How to Do Thematic Analysis | Step-by-Step Guide and Examples. Retrieved from <https://www.scribbr.com/methodology/thematic-analysis/>

- [7] Cervantes and Soriano (2013). Performance of the Bureau of Fire Protection (BFP): Contributions to fire management. Retrieved from <https://www.termpaperwarehouse.com/essayon/Performance-of-the-Bfp-inTermsof-Fire-Prevention/462833>
- [8] Collins. (2022). Definition of 'analysis'. Retrieved from <https://www.collinsdictionary.com/dictionary/english/analysis>
- [9] Congressional Policy and Budget Research Department. (2020). Fire Incidents and BFP Performance. Congressional Policy and Budget Research Department House of Representatives
- [10] Creswell, J. W. (2018). Qualitative Inquiry and Research Design. Retrieved from <http://www.ceilconicet.gov.ar/wpcontent/uploads/2018/04/CRESWELLQualitative-Inquiry-and-Research-Design-Creswell.pdf>
- [11] Gandia E. (2018). "Fire Prevention Programs of Bureau of Fire Protection in Urdaneta City". Pangasinan State University. Urdaneta City, Pangasinan. Retrieved from <https://www.scribd.com/document/432646511/research-on-bfp>
- [12] Grinnel, M, R, J. (2021). Social work research in fire safety preparedness in the educational institutions F.E. Peacock Publisher, Inc.
- [13] Hall, S. and Evarts, B. (2022). Fire Loss in the United States During 2021. Retrieved from <https://www.nfpa.org/~media/fd0144a044c84fc5baf90c05c04890b7.ashx>
- [14] Hamilton, A., Sodergard, B., Liverani, M. (2021). The role of emergency medical teams in disaster response: A summary of the literature. *Nat Hazards* 110, 1417–1426 (2022). Retrieved from <https://doi.org/10.1007/s11069-021-05031-x>
- [15] Hoover, L. (2021). Qualitative Research Designs and Research Methods. Retrieved from <https://www.gcu.edu/blog/doctoral-journey/5-qualitative-research-designs-andresearch-methods>
- [16] Kahanji, C., Walls, RS., and Cicione, A. (2019) Fire spread analysis for the 2017 Imizamo Yethu informal settlement conflagration in South Africa. *Int J Disaster Risk Reduction*. Retrieved from <https://doi.org/10.1016/j.ijdrr.2019.101146>
- [17] Kumba, S. (2017). Ministry of Education Launches Safety Standard Manual For Schools Published on 19 August 2017 in Daily Nation; News Paper. Nairobi Kenya.
- [18] Manual of the Bureau of Fire Protection Firefighters Institutional Regulations and Standards (2021). Retrieved from https://lawphil.net/statutes/repacts/ra2021/ra_11589_2021.html
- [19] Nderitu, C. (2019). Implementation of Safety Guidelines in Public Secondary Schools in Gitchunguri Division, Kiambu District, Kenya University. Retrieved from <http://www.sciepub.com/reference/307261>
- [20] O'Brien (2017). Successful serial arson investigations: a survey and analysis of a Fire Arson Investigation, 67 (4) (2017), pp. 10-15
- [21] Occupational Safety and Health Administration (2015). Fire Service Features of Buildings and Fire Protection Systems. Retrieved from <https://www.osha.gov/sites/default/files/publications/OSHA3256.pdf>
- [22] Onderi, H. and Makori, A. (2017). Training needs of BOG and PTA on school leadership and management in Kenya's secondary education: Country of Kenya in *Global Advanced Research Journal Science (GAEJSS)* Vol. 2 (3) pp. 064-077, March 2017. Retrieved from <http://garj.org./garjss/index.htm>
- [23] Sanchez. (2013, April 25). The Bureau of Fire Protection: Moving Towards True Fire Readiness and Prevention. Available: <https://www.securitymatters.com.ph/the-bureau-of-fireprotection-moving-towards-true-fire-readiness-and-prevention8992>
- [24] Sanchez. (2013, April 25). The Bureau of Fire Protection: Moving Towards True Fire Readiness and Prevention. Available: <https://www.securitymatters.com.ph/the-bureau-of-fireprotection-moving-towards-true-fire-readiness-and-prevention8992>
- [25] Singh, P., Sabnani, C., and Kapse, V. (2021). Integrating benchmark assessment of emergency fire service using geoinformation technology. *Int. J. Disaster Risk Reduction*. Retrieved from <https://doi.org/10.3390/fire4030038>
- [26] Stauffer, E. (2020). Interpol review of fire investigation 2016–2019. Retrieved from <https://www.sciencedirect.com/science/article/>
- [27] Tenny, S. (2021). Qualitative Study. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK470395/>

- [28] Thomas, E. (2017). Chapter 7 - Theoretical Research. Retrieved from <https://doi.org/10.1016/B978-0-12-805349-2.00007-8>
- [29] Vecchiarelli, T. (2020). Fire safety in a sustainable world. Retrieved from <https://www.nfpa.org/News-and-Research/Resources/EmergencyResponders/Jobtools-and-resources/NFPA-and-sustainability/Fire-safety-in-a-sustainable-world>
- [30] Veszprémi, and Pántya (2021). Fire interventions and their difficulties in railway circumstances. Retrieved from https://www.researchgate.net/publication/357713271_fire_interventions_and_its_difficulties_in_railway_circumstances
- [31] World Health Organization (2018). Global Burn Statistics. Retrieved from <https://www.rosenfeldinjurylawyers.com/burn-statistics.html>