

Effectiveness of Valenzuela Local Government in Addressing Fire Induced Disaster

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Abstract

Fire-induced disasters pose significant challenges to urban communities, necessitating an effective local government response to mitigate their impact. This study evaluates the effectiveness of the Valenzuela City local government in addressing fire-induced disasters, focusing on pre-fire preparedness, emergency response, and post-fire recovery efforts. The study employed a mixed-method approach in which samples were taken from local residents through surveys and interviews in highly vulnerable fire-prone Barangays. This suggests that in terms of emergency response with the quick deployment of personnel and equipment, the Bureau of Fire Protection Valenzuela does possess a certain level of efficiency but there are gaps when it comes to preparedness and recovery premised in the community. Instead, residents lamented about scarce resources, the insufficient prevalence of fire prevention programs and the lack of long-term support for victims. To ensure that disaster management is more holistic, the study warns and recommends a better coordinated rehabilitation system, inter-agency collaboration and fire prevention strategy. These findings are also useful for local authorities and urban planners to enhance fire disaster risk reduction plans.

Keywords

Bureau of Fire Protection, Disaster Management, Emergency Response, Fire-induced Disasters, Valenzuela City

1. Introduction

Fire disasters are a significant danger to communities globally, especially in developing nations where high urban density, scarce resources, and informal settlements escalate the dangers and consequences of fire occurrences. In the Philippines, fire incidents are sadly common and devastating disasters. They frequently lead to a considerable loss of life, property, and livelihoods. The Bureau of Fire Protection (BFP) has reported that fire incidents in the Philippines have been on the rise, primarily attributed to the swift urbanization, inadequate fire safety education, and insufficient infrastructure [1]. The economic and social costs of these fires have significant impacts on communities, especially in urban and informal settlements, where fires can rapidly spread, surpassing local response capabilities.

While the government has put in place policies and initiatives to tackle fire risk, the incorporation of local community knowledge and practices into fire disaster management is still restricted. Research has revealed that community-based knowledge plays a vital role in enhancing disaster preparedness and response. Local residents frequently hold information about detailed fire risks, vulnerabilities, and adaptive strategies that external responders might not consider [2]. This knowledge, when combined with formal fire management efforts, can enhance resilience and develop more tailored disaster management strategies, ultimately leading to a decrease in loss of life and property.

In the realm of fire disaster risk reduction and management, local knowledge involves traditional practices, historical insights into fire incidents, and community-based coping mechanisms that have evolved over time. This knowledge can be extremely important for grasping the local context, especially in the Philippines, where communities differ greatly in terms of culture, resources, and risk factors. Integrating local insights can boost preparedness, bolster early warning systems, and enhance response efforts. For example, indigenous knowledge of fire behavior and community-driven prevention strategies have been demonstrated to enhance official firefighting strategies, resulting in more flexible and effective management [3].

Nevertheless, policymakers in the Philippines still face a significant hindrance to achieving effective disaster risk reduction due to their preference for scientific and technical methodologies over local wisdom. Research highlights the advantages of combining local knowledge with formal strategies in disaster management. This integration can enhance the pertinence, ease of access, and longevity of risk reduction strategies. The United Nations Office for Disaster Risk Reduction emphasizes that involving communities in disaster planning and response enhances preparedness levels and diminishes vulnerability [4]. In the Philippines, local communities are crucial in collecting data, assessing risks, and mobilizing resources. Unfortunately, their valuable input is frequently overlooked within official disaster management structures [5].

The omission of local knowledge may result in developing strategies that are less effective and sustainable. They might not adequately cater to the specific needs and circumstances of the communities they aim to safeguard. In the

Philippines, integrating local knowledge into fire disaster risk reduction policies is challenged by institutional resistance, power dynamics, and resource constraints. Policymakers frequently prioritize scientific and technical expertise above community-driven knowledge, leading to a disconnect between policy development and community realities. Furthermore, power imbalances can lead to the marginalization of community voices, especially those belonging to lower-income or indigenous groups. These groups may lack the political influence needed to ensure that their perspectives and requirements are taken into account in official decision-making processes [6]. Limited resources for training, data integration, and capacity-building place additional constraints on the effective incorporation of local knowledge into policy and practice.

The Bureau of Fire Protection is responsible for managing fire disasters nationwide. They encounter significant difficulties in terms of having resources, responding effectively, and engaging with the community. While the BFP has made progress in enhancing fire safety awareness and organizing fire drills, challenges arise in densely populated urban areas due to constraints in staff and resources, which can impact its efficacy. Moreover, inadequate collaboration with local communities may result in response strategies that do not completely match local conditions, hence exposing communities to vulnerabilities during fire incidents.

As the Philippines grapples with ongoing fire disasters, it is imperative to adopt a more inclusive approach that respects and incorporates local knowledge in conjunction with technical expertise. The integration of these knowledge systems can enhance disaster preparedness, improve response mechanisms, and support the development of more effective and sustainable strategies for reducing fire risks. This study underscores the importance of incorporating local wisdom into fire disaster risk reduction and management in the Philippines. It aims to emphasize the significance of community perspectives in enhancing resilience and response to fire dangers. By bridging the gap between formal and informal knowledge, this approach aims to establish a more flexible and responsive framework for fire disaster management. This will help minimize the human and economic impact of fire disasters nationwide.

2. Methodology

In this qualitative approach, researchers can gain a deeper understanding of underlying reasons behind citizens' satisfaction. We selected a diverse group of participants from citizens through purposive sampling. To gather their perception, we conducted semi-structured interviews, which enabled them to express their views freely and provide detailed insights into their experiences. This data was analyzed using thematic analysis, identifying common patterns and themes that emerged from their experiences. This approach contributed to a more comprehensive understanding of citizen satisfaction.

3. Results and Discussion

3.1 Understanding the Local Fire Disaster Knowledge

Local communities possess a wealth of knowledge about fire hazards, prevention, and response, often passed down through generations. This knowledge includes understanding fire behavior, identifying vulnerable areas, and developing traditional fire management practices. Studies emphasize the importance of incorporating local knowledge into disaster preparedness and response strategies [7].

Citizen participation is crucial in enhancing the effectiveness of fire management strategies. Andresen provides insights into how communities perceive and react to fire threats [8]. Public involvement in urban planning ensures that fire safety measures reflect firsthand experiences [9]. Fernandes et al. argue for blending indigenous wisdom with scientific approaches [10].

With climate change increasing fire frequency, a holistic approach is needed to reduce fire risk effectively. Pooling local fire knowledge with formal DRR strategies has merit and should be emphasized.

3.2 Merging Local Knowledge to Fire Disaster Risk Reduction Management

Local fire management techniques often evolve based on environmental and cultural factors. Prescribed burns maintain ecological balance and represent a traditional practice. Setten and Lein recognize local knowledge in tackling natural hazards. Cvetkovic et al. found that many residential fire incidents stem from human activity [11].

Community engagement creates ownership and enhances resilience. Participatory frameworks allow scientists and local communities to co-create fire management plans [12]. Training, workshops, and drills can strengthen local capacities and foster inclusive strategies.

3.3 Integrating Local Knowledge into Environmental Policy

Integrating local knowledge is a sustainable development strategy. Vasileiou et al. advocate for community engagement in DRR and early warning systems [13]. Top-down methods often alienate communities, while participatory models foster ownership and better outcomes [14].

Policies informed by local knowledge are more likely to be accepted and implemented. Participatory decision-making ensures that strategies reflect actual needs. Vázquez-Varela et al. highlight how local perspectives enrich fire resilience policies [15].

3.4 Challenges in Integrating Local Knowledge into Environmental Policy

Lin and Chang define local knowledge as wisdom built over time [16]. One major challenge is the preference for scientific evidence over community insights. Cuaton and Su found that this undervalues critical knowledge and limits its integration [17].

Top-down decision-making marginalizes local needs [18]. Brondizio et al. discuss governance power imbalances that suppress local voices [19]. Limited resources, especially in developing regions, hinder documentation and training.

To counter this, policymakers should create forums, invest in documentation, and develop participatory models that prioritize community engagement.

3.5 The Current Status of Fire Disaster Risk Reduction in the Philippines

The BFP faces systemic issues such as manpower shortages and outdated equipment. Fire disasters not only claim lives but devastate economic assets. IoT-based mitigation systems are being developed for faster alerts and responses [20].

Understanding fire dynamics is crucial for resource allocation. Mell et al. emphasize aligning resources with community risk landscapes [21]. Models like the Alert Center can be replicated in other cities to improve national DRR.

3.6 Systematizing the Fire Triangle, Emergency Alert and Warning System

Understanding the fire triangle (heat, fuel, oxygen) empowers communities to prevent and manage fires. Protection [22] explains this chemical reaction and its real-world applications. Public awareness programs reduce fire frequency and severity [23].

Advanced alert systems with sensors improve evacuation efficiency. Kim et al. underscore the importance of early detection [24]. Idris adds that psychological readiness complements technological preparedness [25].

Community action strengthens formal emergency responses. AlKalash et al. support integrating local knowledge to build stronger DRR frameworks [26]. Unrecorded incidents can be documented through community data, improving risk assessments.

4. Conclusion

Fire-induced disasters continue to pose a serious threat to the lives, property, and welfare of people in the Philippines, especially with the growing intensity and frequency of such incidents in urban areas. In response, the local government of Valenzuela City have established facilities like the Alert Center, which aims to deliver swift emergency management and disaster response. However, despite these initiatives, citizen satisfaction with fire response services remains underexplored. This study addresses that gap by evaluating the effectiveness of the Local Government of Valenzuela in addressing fire induced disaster using the five dimensions of service quality: tangibility, reliability, assurance, responsiveness, and empathy. The research highlights the significance of continuous citizen feedback, community participation, and policy enhancement to develop more culturally relevant and effective fire disaster risk reduction systems.

The findings reveal high levels of citizen satisfaction, largely due to the prompt response of firefighters and rescue teams, who often arrive at the scene within minutes. The Alert Center's collaboration with the local police, health agencies, and the Bureau of Fire Protection (BFP) enhances the efficiency of its services. Public trust is further reinforced by consistent disaster education programs, community drills, and transparent communication via SMS alerts, social media, and local news. These initiatives help reduce panic and facilitate more coordinated public responses during emergencies. The center also provides timely assistance to affected communities through food, shelter, medical care, and psychological support. Nonetheless, the study identified weaknesses in post-disaster recovery, particularly in mourning support, long-term aid for displaced families, and the restoration of essential services like electricity, water, and transportation, which some residents felt were slow and inadequate.

Moreover, the study concludes that there is a pressing need for deeper community involvement in disaster preparedness initiatives. Although the local government of Valenzuela City has made strides in improving fire disaster response, residents indicated that preventative efforts and public engagement have been minimal. Participants emphasized the importance of regular fire drills, public awareness campaigns, and fire safety training to empower citizens with the knowledge and skills to act effectively during emergencies. Enhanced community participation not only strengthens preparedness but also contributes to a more resilient and proactive response system, ultimately minimizing the impact of fire-related disasters.

5. Recommendations

The study conducted by the researchers produced recommendations which highlight the importance of integrating local knowledge and understanding citizen experiences and perspectives for effective policy development. Firstly, integrating local knowledge into fire disaster policies is important. Policy makers can gain valuable insights into community-specific vulnerabilities, priorities and areas highly susceptible to fire induced. Fostering a collaboration between government and community and promoting inclusive decision-making processes can help policy makers in developing fire policies. Merging this local knowledge with formal approaches not only strengthens community

resilience, but also leads to more appropriate and sustainable fire disaster risk reduction strategies. However, challenges such as limited resources, the prioritization of scientific knowledge and power dynamics prevent the full integration of community knowledge into official environmental policies. Despite these obstacles, citizen participation remains essential for effective fire management.

In light of the results, it is recommended that the Bureau of Fire Protection continue to engage local communities in fire disaster risk reduction initiatives, ensuring that local knowledge is systematically integrated into policy development strategies and preparation. Regular evaluations of the Local Government of Valenzuela City services should be conducted, focusing on citizen satisfaction and improving key dimensions of service quality such as reliability, responsiveness, and empathy. Additionally, the city should allocate more resources and promote collaborative efforts between policymakers and local stakeholders to address challenges in integrating local knowledge into fire disaster response systems. These efforts will result in more efficient, culturally relevant, and responsive fire disaster management, not only in Valenzuela City but also in other urban areas in the Philippines.

Furthermore, the city government should prioritize the nonstop improvement of its fire anticipation and calamity reaction system through instruction and preparing programs focused on both citizens and fire security experts. By raising mindfulness on fire dangers and chance relief methodologies, the nearby government can make a more fire-resilient community. These instructive activities ought to incorporate reenactments, drills, and workshops that emphasize the significance of nearby information in fire reaction activities. This will not as it were prepare inhabitants with the fundamental abilities but will moreover cultivate a culture of readiness and participation. It is additionally suggested that the city government build up a framework for customary input collection from citizens with respect to their encounters with fire-related crises and the reaction of the Alarm Center. By making stages where citizens can unreservedly express their concerns and proposals, the city can pick up a more profound understanding of the holes in benefit conveyance and ranges requiring advancement. Building up a citizen criticism component can also make strides responsibility, because it permits for the nonstop checking of the execution of the Alarm Center and other offices included in fire disaster management.

Based on expected findings, several recommendations are proposed to improve the general efficiency of Local Government of Valenzuela City in responding during fire-induced disasters. For starters, emergency services (fire department or medical teams) must have better ability to respond all while maintaining high operational performance. This could be done through the use of a real-time dispatch system utilizing data analytics and GIS mapping, which will enable fire trucks and personnel to mobilize much more rapidly. The readiness of both the local government of Valenzuela City and responders needs to be tested in regular fire disaster drills or simulations as swift action is required when an incident occurs.

Internalization of equipment and better resource utilization is another equally important aspect. The Local Government of Valenzuela City should also push for better funding to procure more up-to-date firefighting equipment as well further adding reduction of the availability of fire trucks in particularly underserved areas. Increasing the number of fire stations within dense or high risk areas will help firemen respond quicker and provide better coverage.

A requirement of adequately manning the fire service so that multiple events can be responded to simultaneously will improve overall Alert Center response capacity. Existing policies should be reviewed and new performance metrics developed to comply with global best practices. These metrics – including response time, and customer satisfaction – are to be enforced which will ultimately hold the Alert Center accountable over its effectiveness. Collaborating with the private sector in industries such as construction, telecommunications and logistics is able to strengthen disaster response efforts, offering more resources and bettering communication (internet) capabilities.

This approach allows the informed strategies of local government to benefit from engagement towards better appropriation of emergency response processes, towards empowering citizens by ascertaining their voices are integral parts of the emergency response system. It will, therefore, strengthen responsiveness and adaptability leading to a more resilient and trusting community.

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