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ORGANIZING VOLUNTEER FIREFIGHTERS IN LITHUANIA: CHALLENGES AND OPPORTUNITIES

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Abstract

This article examines the role of Lithuanian volunteer firefighters in ensuring public safety and the possibilities of organizing their activities. The aim of the study is to analyze the possibilities of using volunteer firefighters and to provide recommendations on how to organize their activities more effectively in Lithuania, taking into account economic, social and operational efficiency aspects. Important challenges related to the inclusion of volunteer firefighters in the fire and rescue system are presented, such as fragmentation of fire and rescue services management, insufficient motivation and inadequate financial support. The article examines the most important factors that can improve the integration of volunteer firefighters – the creation of a clear legal framework, the balance of centralized and decentralized management, strengthening the volunteer motivation system, optimizing team deployment and implementing inter-institutional cooperation mechanisms. The study findings show that with the correct implementation of these measures, it is possible not only to increase the number of volunteer firefighters, but also to improve the efficiency of the fire and rescue system and public safety.

Keywords: fire and rescue services, Lithuania, volunteer firefighters.

INTRODUCTION

Volunteer firefighters are a significant part of the public safety system, especially in regions where professional firefighters and budgets are limited. The changing social and demographic environment requires new adaptive solutions, as organizations that are able to effectively implement changes remain the most competitive. The aging of the population, the strengthening of individualism, migration from sparsely populated to more densely populated

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areas and other processes pose challenges, affecting fire and rescue system organizations as well.

Many countries address these challenges by using volunteers, who make a significant contribution to the activities of fire and rescue services (FRS). In Lithuania, the importance of volunteer firefighters has been increasing in recent years, but this activity faces serious challenges, such as limited resources, an aging community and a decreasing number of volunteers. International experience shows that properly organized volunteer activities can not only increase the efficiency of incident response, but also reduce management costs and strengthen community ties.

Despite the existing model of volunteerism in the public sector, Lithuania lacks systematic research aimed at examining the possibilities of involving volunteer firefighters and organizing their effective activities. Existing research mainly emphasizes motivation and service quality, but the issues of interaction between volunteers and professional forces and optimization of activities remain insufficiently studied. International literature emphasizes the importance of volunteer firefighters in ensuring public safety, especially in rural and more remote areas, which is also relevant for Lithuania.

This article analyzes the potential role of volunteer firefighters and proposes effective strategies for optimizing their organization in Lithuania. International and national experience is discussed, relevant research is analyzed, and the main problems are highlighted. Based on this analysis, recommendations are presented that could contribute to the improvement and increase of the efficiency of volunteer firefighters, in order to strengthen public safety in Lithuania and in the world.

THEORETICAL OVERVIEW

Ito-Morales (2024) analyzed the 2015 Anraku Temple fire in Mizuteke District, Japan, and highlighted the importance of volunteer firefighters' local knowledge and rapid response in extinguishing the fire. Due to the lack of resources and capacity to extinguish the fire, the temple was almost completely destroyed, but volunteer firefighters stopped the fire from spreading to neighboring buildings, thus avoiding even greater consequences. The analysis of this event in the scientific study emphasizes the importance of volunteer firefighters in the community and their limited capabilities to deal with large-scale incidents.

Research on volunteer organizations tends to focus on economic aspects. Although volunteer involvement requires resources for training, management, and infrastructure, it is observed to reduce organizational costs, improve service quality, and increase community engagement (Kang, 2019). Nesbit et al. (2018) note that effective volunteer integration allows organizations to better allocate resources, but it is necessary to strategically manage volunteers and ensure a connection between organizational decisions and volunteer responses. It is also important to combine paid and volunteer work to achieve greater impact on the organization's mission and strengthen the connection with the community.

Many studies (Degel et al., 2014; Kang, 2019; Lee, 2011; Nesbit et al., 2018; Seong-Cheon, 2015, etc.) highlight the economic benefits of volunteers, while others emphasize the importance of professional firefighters for rapid response and efficient operations (Dawson et

al., 2015; Jaldell, 2017; Jeong, 2009; Martinovich et al., 2020; Mattson et al., 1997). However, studies of volunteer firefighters often discuss management challenges, while studies of professional FRS emphasize budget constraints. This suggests the need to combine volunteer and professional firefighters to achieve efficiency and cost-effectiveness.

The integration of volunteers into the public sector is not always sufficiently researched. Although foreign authors have addressed the issues of effective management (Haddad, 2010; Hyunchul, 2016; Lee, 2011; Puolokainen et al., 2018), voluntary organizations face challenges due to aging communities, declining volunteer numbers, and individualization of society. Degel et al. (2014) studied how to optimize the German volunteer fire station network, ensuring rapid response and efficiency despite declining volunteer numbers and budget constraints.

Ito-Morales (2024) notes that in Japan, volunteer firefighters are considered partly state employees - they receive financial compensation and social guarantees. In Japan, volunteers make up the main part of the fire force, which emphasizes the importance of volunteers. A similar trend is reflected in the works of other researchers around the world (Yoon, 2014; Jeong, 2009; Lee, 2011; Puolokainen, 2017; Thomson III, 1993, etc.). In recent years, volunteer firefighters have constituted approximately 20% of the total firefighting workforce in Lithuania (STRATA, 2022). Enhancing this proportion is crucial, requiring the development of strategies that are adaptable to evolving social and economic conditions.

According to an analysis by the Fire and Rescue Department of Lithuania (PAGD, 2019), the organization of volunteer firefighter activities enables more efficient resource utilization. However, a critical question arises: can volunteer contributions alone ensure public safety? Kang's (2019) study indicates that while volunteers significantly contribute to organizational operations, a certain "critical mass" of volunteers is required. This threshold depends on task complexity, organizational size, and the operational environment. Therefore, it is essential to establish an optimal balance between volunteers and professionals while ensuring effective motivational factors.

Lithuanian studies (Besevičienė, 2016; Juciūtė, 2008; Kairys, 2015; Marozas et al., 2020; Pribišauskas, 2016) emphasize the importance of motivation in the activities of the Fire and Rescue Service (FRS). However, there is a lack of in-depth analysis regarding volunteer engagement. Research by Barisas (2016) and Dzemyda (2016) on the quality aspects of Lithuanian FRS highlights the significance of volunteerism in service quality, but only to a limited extent. Consequently, the insufficient scope of research and insights from international studies on the challenges of organizing volunteers in rural areas further underscore the relevance of this topic.

The subject of this study is the organization of volunteer firefighter activities in Lithuania and their role in ensuring public safety.

The aim of the study is to analyze the potential for engaging volunteer firefighters and to identify effective organizational strategies for their activities in Lithuania, considering economic, social, and operational efficiency aspects.

The research methodology includes comparative analysis, scientific literature review, legal framework analysis, statistical data analysis, and strategic document analysis.

RESEARCH METHODS

This study examines Lithuania's legal and strategic documents that regulate and define the organization of volunteer firefighter activities and their role in ensuring public safety. International and national statistical data are analyzed, collected from official institutions such as the Lithuanian Department of Statistics and the Fire and Rescue Department, as well as from reports by international organizations. A review of scientific literature focusing on the activities of volunteer firefighters in Lithuania is conducted. Based on this analysis, the study develops a research framework that further defines the organizational aspects of volunteer firefighting and clarifies the role of volunteer firefighters within the Lithuanian context.

To determine the general characteristics of volunteer engagement across various organizations, scientific literature from global researchers examining volunteer recruitment is analyzed. Additionally, to explore the specific challenges, opportunities, and solutions related to volunteer firefighter engagement in different parts of the world, research specifically addressing this issue is examined. The findings derived from this analysis identify key issues, opportunities, and solutions concerning the involvement of volunteer firefighters on a global scale. These results are then assessed and compared within the Lithuanian context.

The current state of volunteer firefighting in Lithuania is reviewed based on an analysis of national scientific research, regulatory legal and strategic documents, and statistical data. Furthermore, a comparative analysis is conducted to evaluate the practices, challenges, and solutions applied in Lithuania and abroad. Considering local public policy, existing challenges, and international practices, this study formulates strategic recommendations for enhancing the involvement of volunteer firefighters in the public sector and improving the efficiency of the fire prevention system. Finally, conclusions are drawn, and future perspectives are outlined.

CHALLENGES AND SOLUTIONS IN THE ORGANIZATION OF VOLUNTEER FIREFIGHTERS

Analysis of the Current Situation in Lithuania

The organization of Lithuania's fire and rescue services (FRS) faces several significant challenges. One of the primary issues is the insufficient remuneration of firefighters. In 2023, the average gross salary of a firefighter was €1,566.66, while the average salary of public sector employees in Lithuania was €2,296.80 (PAGD, 2024; State Data Agency, 2024). This disparity contributes to firefighter demotivation, as highlighted in scientific research (Besevičienė, 2016; Juciūtė, 2008; Kairys, 2015; Marozas et al., 2020; Pribišauskas, 2016). Researchers emphasize that increasing salaries could improve the motivational climate and the overall quality of FRS operations. Since professional firefighters constitute approximately 80% of Lithuania's FRS (STRATA, 2022), inadequate financial incentives have a direct impact on the efficiency of the fire safety system.

Lithuania follows a mixed fire safety model, where state institutions, municipal agencies, and volunteer firefighters share responsibilities. However, the role of volunteer firefighters

remains limited, with volunteers accounting for only about 20% of all firefighters in 2020 (STRATA, 2022). Compared to other European Union (EU) countries, Lithuania has one of the lowest proportions of volunteer firefighters. A study by the Branderweeraacademie (2019) found that among 15 analyzed EU countries, only Latvia (2%) and Hungary (14%) had a lower percentage of volunteer firefighters, while in other countries, this proportion ranged from 35% in the United Kingdom to 99% in Austria. According to 2022 data from CTIF (2024), the share of volunteer firefighters was between 60–65% in the United States and South Korea, 80–85% in New Zealand, Canada, and Japan, and 95–99% in China and Vietnam. This situation highlights the untapped potential of volunteer firefighters and the need for more effective solutions.

The effectiveness of volunteer firefighter operations depends on legal reforms, financial support, and consistent policy implementation (Jeong, 2009). Lithuania lacks clear regulations defining the role of volunteers and their compensation mechanisms. The experience of Germany has demonstrated that optimizing the deployment of firefighting teams based on population density and risk factors enhances response times and reduces costs (Degel et al., 2014). In Lithuania, these aspects remain underdeveloped. STRATA (2022) reports that the absence of a systematic methodology for fire and rescue unit deployment leads to an uneven distribution of workload.

Although the The Law on Fire Safety of the Republic of Lithuania (PSĮ) stipulates that the Fire and Rescue Department under the Ministry of the Interior (PAGD) provides methodological support and oversees other FRS activities, institutional fragmentation within the public security sector reduces operational efficiency, as highlighted in the Public Security Enhancement and Development Program (VSSPP, 2023). State and municipal fire services differ in terms of functions, preparedness, and funding, creating challenges related to clarity and coordination. South Korea encountered similar issues and successfully addressed them through centralization (Jeong, 2009; Seong-Cheon, 2015).

Another critical challenge is the aging volunteer firefighter community in rural areas. According to STRATA (2022), fire-related fatalities in small towns and rural areas in Lithuania are 1.7 times higher than in cities, indicating the need to strengthen fire safety in these regions. Colibaba et al. (2021) emphasize the importance of engaging older volunteers in rural communities while adjusting their roles and workload accordingly. A study by PAGD (2019) reveals that volunteers, who are predominantly based in rural areas, lack adequate support mechanisms and incentives, leading to declining engagement.

In summary, improving the efficiency of fire and rescue operations requires greater volunteer involvement, clearer role definitions, and strengthened financial mechanisms. Addressing these challenges necessitates learning from best practices in other countries, including optimizing the deployment of firefighting units, implementing public awareness campaigns, and introducing legal reforms. Such changes could not only enhance the effectiveness of FRS operations but also strengthen public trust in the national security system.

Theoretical Review of Volunteer Integration Solutions

The issues of integrating, retaining, and effectively managing volunteer firefighters have been widely discussed in the academic literature (Beatson et al., 2005; Branderweeraacademie, 2019; Brazil, 2017; Haddad, 2010; Ito-Morales, 2024; Jeong, 2009; Hyunchul, 2016; Milligan-Saville, 2018; Seong-Cheon, 2015; Thomson III, 1993, among others). Researchers frequently emphasize challenges related to the shortage, management, and motivation of volunteers, proposing solutions that encompass financial, promotional, social, and administrative aspects.

Public awareness campaigns play a crucial role in addressing the shortage of volunteer firefighters and increasing youth engagement. Promotional efforts, information dissemination, and support mechanisms enhance public awareness of volunteer contributions, thereby encouraging more people to join (Lee, 2011). The importance of collaboration and communication between communities and institutions is highlighted by Ito-Morales (2024), who suggests the implementation of information technologies to improve operational efficiency and attract younger volunteers while addressing demographic shifts.

Seong-Cheon (2015) proposes a motivation system that provides career advancement opportunities within the firefighting service. Similarly, programs introduced in Japan encourage participation among women, youth, and civil servants (Lee, 2011). Promotional mechanisms through various channels, including social media, help mitigate the challenges posed by an aging population and declining numbers of young volunteers (Yoon, 2014). Hyunchul (2016) identifies motivational factors related to volunteer engagement and job satisfaction. Encouraging participation through responsibility delegation and interpersonal communication is essential for volunteer retention. Moreover, effective funding is critical for both volunteers and professionals. In Japan, volunteer fire organizations are financed through local budgets, ensuring high-quality equipment and strong community ties (Lee, 2011). Haddad (2010) emphasizes the importance of organizational adaptation to societal culture. As individualism expands and public willingness to engage declines, organizations must become more attractive to younger generations. Additionally, training and skill development enhance volunteer competencies and reduce stress-related consequences (Brazil, 2017; Branderweeraacademie, 2019). A well-balanced approach that integrates training, incentives, and social inclusion strategies contributes to volunteer retention.

The significance of balanced management strategies is highlighted by Seong-Cheon (2015), who recommends establishing administrative units to provide support and ensure operational efficiency. Meanwhile, Dawson et al. (2015) suggest formalizing fatigue management practices to reduce risks and enhance safety.

Many studies address the challenges posed by an aging population and remote areas, stressing that a differentiated approach to senior volunteers helps maintain their engagement (Colibaba et al., 2021). Efficient volunteer firefighter organizations adapt to demographic changes and ensure an equitable workload distribution. Modernization and democratization, as demonstrated in Japan, facilitate the inclusion of diverse groups, including women and young individuals (Haddad, 2010).

The importance of integrating women into firefighting services is underscored by Jeong (2009) and Thomson III (1993), who propose task differentiation based on individual capabilities. Beatson and McLennon (2005) emphasize that promoting female participation in fire services requires addressing public perception issues. Additionally, consideration should be given to involving other groups, such as students and foreign residents (Ito-Morales, 2024). The incompatibility of volunteer commitments with other responsibilities is identified as a key factor contributing to motivation deficits, as revealed in studies by Branderweeraacademie (2019) and PAGD (2019). Employer incentive programs and more balanced workload distribution could improve this situation. Furthermore, Milligan-Saville et al. (2018) found that the risks faced by volunteer firefighters are similar to those of professional firefighters, highlighting the need for adequate support and funding.

Effective volunteer firefighter management is crucial for ensuring public safety. Strategies for improving volunteer engagement are outlined in Table 1 of this article.

Table 1. Directions, Challenges, and Opportunities for Improving Volunteer Engagement.

	Directions	Challenges	Opportunities
1.	Public Awareness	Lack of publicity and misalignment with societal and individual needs (Lee, 2011; Yoon, 2014)	<ul style="list-style-type: none"> • Utilization of social networks and digital platforms; • Targeted audience outreach; • Engagement of municipalities and institutions; • Positive image formation.
2.	Communication	Lack of interinstitutional cooperation; Underutilization of information and communication technologies (Ito-Morales, 2024; Seong-Cheon, 2015)	<ul style="list-style-type: none"> • Implementation of interinstitutional collaboration mechanisms to address common issues; • Integration of information and communication technologies in volunteer organizations.
3.	Organizational Motivation	Underutilization of organizational motivation for responsibility, personal development, and socialization; Lack of adventure and excitement in activities; Overly demanding requirements for volunteer service (Branderveeraacademie, 2019; PAGD, 2019)	<ul style="list-style-type: none"> • Providing career advancement opportunities; • Encouraging participation from other organizations; • Joint activities within the organization; • Delegation of decision-making; • Properly structuring team deployment to ensure volunteer participation in incidents; • Optimizing activity requirements.
4.	Funding	Inefficient allocation of funds; Unclear compensation mechanisms (Jeong, 2009; Yoon, 2014)	<ul style="list-style-type: none"> • Ensuring a well-structured financial mechanism with delegated control over funding sources; • Implementation of tax incentives; • Pension accumulation incentives.

5.	Training	Intensive training programs that do not align with motivations and needs (Brazil, 2017; Branderveeracademie, 2019)	<ul style="list-style-type: none"> • Designing training programs tailored to motivations and specific activity needs; • Reducing training intensity; • Implementing stress management strategies.
6.	Management	Non-democratic leadership; Fragmented management structure (Seong-Cheon, 2015)	<ul style="list-style-type: none"> • Delegation of decision-making, oversight, and responsibility; • Centralization of management; • Establishment of clear functional regulations.
7.	Organizational Modernization	Ignoring demographic, cultural, and social factors; Inflexible working conditions; Bureaucratic barriers to participation (Haddad, 2010; Jeong, 2009)	<ul style="list-style-type: none"> • Integration of women and senior volunteers; • Customization of tasks for seniors and women; • Regional planning based on population density and risk factors; • Inclusion of diverse societal groups.

Application of Volunteer Firefighter Integration Solutions in Lithuania's Fire and Rescue Services

Lithuania's fire and rescue system faces challenges related to the fragmentation of FRS management, necessitating a clear delineation of responsibilities. The first step should be the development of a comprehensive vision for the FRS system, defining the functions of municipal FRS (MFRS) while emphasizing the role of volunteer firefighters. Additionally, it is crucial to establish the scope of centralized management and delegate decision-making authority and responsibility limits to MFRS. According to the strategic management model proposed by Bryson and George (2020), strategic documents should outline a vision and mission for addressing these issues, beginning with the establishment of a legal framework, followed by pilot projects in municipalities, and concluding with the implementation of reforms and evaluation of outcomes.

To address identified challenges, particularly the misallocation of FRS units, it is essential to update FRS standardization. This would enable unit deployment models to be linked with population density and risk data. By utilizing methodologies from international researchers (Degel et al., 2014; Puolokainen et al., 2018), the fire and rescue network could be optimized, leading to cost savings that could be redirected toward equipment modernization. Consistent funding would ensure the long-term renewal of equipment and help resolve issues related to outdated technology.

In Lithuania, establishing an optimal ratio between volunteer and professional firefighters is crucial for increasing the number of volunteers. This ratio should serve as a key indicator for assessing the effectiveness of volunteer engagement. When modernizing volunteer organizations, it is necessary to consider factors such as improving the efficiency of volunteer dispatch to incidents, defining their functions in emergency response, implementing effective compensation mechanisms, applying tax incentives, and ensuring control mechanisms.

Responsibility for volunteer management could be delegated to a volunteer coordinator, while oversight would remain with the State fire and rescue board (SFRB). A summary of the proposed solutions for volunteer firefighter integration, considering the specific challenges of FRS organization in Lithuania, is presented in Table 2.

Table 2. Solutions for the Integration of Volunteer Firefighters in Lithuania's FRS

	Category	Challenges	Solutions
1.	FRS Management	Fragmentation, undefined responsibility boundaries	Clear management structure: Definition of MFRS functions and SFRB responsibility boundaries.
2.	FRS Units Deployment	Improper unit allocation, uneven workload distribution	Optimization of unit networks based on risk and density data; Utilization of mathematical models.
3.	Increasing the Number of Volunteers	Low percentage of volunteers compared to other countries	Encouraging volunteerism by increasing financial incentives and raising awareness of volunteer importance.
4.	Funding	Insufficient fund allocation, unclear compensation mechanisms	Centralized funding regulation, clear compensation mechanisms, implementation of tax incentives.
5.	Modernization	Outdated equipment issues, undefined volunteer roles	Continuous equipment renewal, regulation of volunteer functions, improvement of training systems, and integration of information and communication technologies within organizations.

RESULTS

When comparing established practices in Lithuania with volunteer firefighter integration models and solutions applied in foreign countries, it becomes evident that Lithuania's fire and rescue service (FRS) structure requires clear guidelines for change and the pursuit of more effective organizational solutions involving volunteers. The study reveals that the inclusion of volunteer firefighters in Lithuania's fire and rescue system is essential, particularly in smaller towns and rural areas where there is a shortage of professional firefighters. Although volunteers perform functions similar to those of professional firefighters, their engagement is more community-focused, emphasizing public safety and crisis management. However, their operational efficiency heavily depends on organizational structure, training systems, and motivational measures.

Engaging volunteer firefighters presents a cost-effective solution for Lithuania, as it reduces expenditures associated with firefighter salaries, allowing the saved resources to be redirected toward other critical areas such as equipment modernization or fire prevention. However, the study also highlights the lack of an adequate funding mechanism to ensure fair compensation and sustained motivation for volunteers. Additionally, social factors indicate that the number of volunteer firefighters in Lithuania is significantly lower compared to many Western,

Scandinavian, and East Asian countries, underscoring the need for measures to enhance their involvement in the fire protection system.

The study identified several challenges in organizing volunteer firefighter activities in Lithuania, including fragmentation within the FRS management system and unclear responsibility boundaries. The FRS system lacks a clear vision defining the functions of municipal FRS and the role of volunteers. This creates difficulties in both coordinating volunteer activities and determining responsibilities and decision-making processes. To optimize the system, it is crucial to establish clear regulations defining the limits of centralized and decentralized management, delineating municipal responsibilities and the role of the State Fire and Rescue Board, as well as ensuring proper delegation of functions.

It is evident that volunteer motivation is a key factor in ensuring sustained engagement and long-term commitment. The study revealed that the current motivational framework is insufficient, lacking a clear compensation system that encourages volunteers to remain in service for extended periods. It is important to develop tangible motivational mechanisms such as financial incentives, pension accumulation programs, and career advancement opportunities. Furthermore, fostering an inclusive environment that encourages youth and women to join the service is essential. Public awareness campaigns, along with the utilization of social media and digital platforms, can help attract target audiences and enhance the positive public perception of volunteer firefighters.

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