



# Results and Future of Disaster Management Research in the System of Law Enforcement Sciences

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## Abstract

**Aim:** The purpose of this study is to analyse and evaluate the main results and experiences of disaster management research and development activities, on the basis of which to determine future development directions.

**Methodology:** The impact assessment prepared in the framework of the study presents the characteristics of disaster management research and development activities, and also makes structured proposals for solving the appeared research problems.

**Findings:** The results of disaster management scientific activity carried out as part of law enforcement researches provide an opportunity to modernise the

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legal regulatory, professional and technical bases of disaster management administration in a manner appropriate to recent scientific development.

**Value:** The disaster management research and development experiences processed in the framework of the study provide a suitable basis for a high level of compliance with the relevant social needs.

**Keywords:** disaster management, civil protection, fire protection, industrial safety

## Introduction

According to Article 1(1) of Act CXXVIII of 2011 on disaster management and amending certain related acts, *'disaster management is a national matter, the unified management of which is a state task'*. This principle can be traced both in the definition of the research and development needs of the commissioning organisations and in the definition of the development tasks related to the scientific basis of the prevention, preparedness, protection and recovery tasks of the organisations involved in disaster management. The regulatory, organisational, procedural and methodological specificities of the fire protection, civil protection and industrial safety fields of the disaster management system have also been reflected in disaster management research and development activities (Varga, 2023). At the same time, an important element of the related organisational development history has been the fact that over the last more than two decades, disaster management has been developed as part of law enforcement administration (Góra, 2021).

The scientific work of the members of the Disaster Management Section of the Hungarian Association of Police Sciences (Magyar Rendészettudományi Társaság, hereinafter: MRTT) is determined by the scientific research work of the civil protection, fire protection, industrial safety and fire protection engineering groups, in accordance with the above-mentioned social needs. The mission of the Disaster Management Section is the scientific research, systematisation, development and utilisation of all knowledge directly and indirectly related to law enforcement and police science, especially the modernisation of integrated disaster management activities in line with European requirements, and the exploration of the past of the predecessor organisations of the Hungarian disaster management ([URL1](#)).

The research work is of course closely related to the research and development tasks of the disaster management higher education system of the

Ludovika University of Public Service, since the members of the MRTT Disaster Management Section are mainly lecturers and students of the Institute of Disaster Management (Katasztrófavédelmi Intézet, hereinafter referred to as the KVI).

The authors of the study agree with the statement of László Christián and his colleagues that one of the main tasks of the Faculty of Law Enforcement is *'to increase the character of the university as a scientific-intellectual centre and to ensure the practice-orientation of scientific research'* (Christián, Hautzinger & Kovács, 2021). Research cooperation with the National Directorate General for Disaster Management, Ministry of the Interior (NDGDM) and institutions of higher education is also essential.

In present article, the authors present the main features of the disaster management research conducted in the Disaster Management Section of the MRTT, its relation to law enforcement, the results of the recent research and possible directions for future development.

## **General characteristics of scientific research and development in disaster management**

Scientific research and development in disaster management can be analysed from two angles. On the one hand, disaster management science is *'related to the disciplines of law enforcement and also touches on aspects of military science'* (Ambrusz & Vass, 2020), and on the other hand, it is related to military engineering (Bleszity et al., 2016).

Disaster management research is strongly influenced by doctoral training at university level. PhD doctoral training in disaster management is available mainly at the Doctoral School of Military Engineering (Katonai Műszaki Doktori Iskola, KMDI), the Doctoral School of Military Science (Hadtudományi Doktori Iskola, HDI) and the Doctoral School of Police Science (Rendészettudományi Doktori Iskola, RDI) of Ludovika University of Pulic Service. The KMDI has had a separate research area on protection management since 2014, and a separate research area on disaster management since 2015. Currently 19 PhD students are studying here. An outstanding achievement is the fact that 36 of the students in this research area have been awarded PhD degrees since 2015. A PhD in disaster management was also announced at the RDI, where one person obtained a PhD in disaster management. It is important to note that there is a need and an opportunity for development in the field of doctoral training in the field of special legal order, crisis management and disaster management,

which the authors believe should be strongly supported. The research and development activities are based on the KVI and its collaborating organisations.

Figure 1 shows the relationship between teaching excellence and the development of research activity, which in many respects builds on the results of student talent management.

**Figure 1**

*The links between excellence in teaching and the development of research*



*Note.* The figure was created by the authors.

## **Analysis and evaluation of civil protection research**

The challenges of law enforcement and national security have changed fundamentally for the 21st century. The system of challenges, risks and threats has become global, but the role of local phenomena cannot be ignored. Domestic responses to disaster management challenges must take into account international experience, good practices and local challenges.

The main research focus of the Civil Protection Unit of the Department of Disaster Management of the MRTT is the renewal of the methodology of preparing the population for disaster management and increasing the effectiveness of the preparation of those involved. In the spirit of further strengthening the protection and security of the country and the Hungarian citizens, the amendment of the

Fundamental Law and Act XCIII of 2021 on the Coordination of Defence and Security Activities and its implementing regulations have completely changed and placed on new foundations the special legal order situations, the legal regulatory areas defining the related state functions and the underlying state and national functions. The legislator has supplemented the existing sectoral functioning with a framework for effective cooperation and coordination between the whole of government, replacing sectoral demarcation, with the emphasis on strengthening the preparedness and security awareness of society.

To this end, the completeness and continuity of the defence-security rulebook has been incorporated as a fundamental requirement to make normal rule of law crisis management and special rule of law regulation more effective.

By modernising the regulation, the legislator also wanted to increase the preparedness and security awareness of non-state actors, strengthening the security of our country and nation. The public's contribution is essential in this overall social task, which also places civil protection and disaster management tasks at the intersection of research in this field.

The system of challenges and threats is therefore fragmented, so responses cannot be one-plane or isolated. Research in this group needed to explore the likely impacts of disasters, to better identify the need for effective preparedness, and to establish the requirements for rapid, accurate information and alert to mitigate damage.

Our country must have the capabilities that form a complex system of prevention and disaster risk reduction. Taking into account our geography and the often cross-border nature of natural or industrial disasters, disaster management cooperation with neighbouring countries should be enhanced, exploring opportunities for mutual assistance, creating effective thematic common content and providing an applied knowledge base.

Disaster management is a national affair, so it is essential that society as a whole contributes to prevention, protection and recovery.

### *Research pillars*

Research pillars of the Civil Protection Unit are based on awareness, systematic preparation, preparedness and proactive information on natural and civil disasters and hazards. In the context of prevention, protection and successful consequence management, the training of defence and public administration managers is a common task. In order to prepare pupils for disaster management, it is necessary to develop a methodology for the primary and secondary phases of education, on the basis of which the content of lifelong emergency preparedness should be integrated.

Table 1 shows the research themes that have been initiated, consolidated and supported in the past year, which also provide the basis for further research directions.

Table 1  
*Civil protection research themes*

Chapters	Titles and main research lines
I.	Tasks of disaster management training for public administration leaders
II.	The tasks of training the members of the territorial protection committee, the chairpersons of the local protection committees and those involved in the administration of protection and disaster management at territorial level
III.	Timely training of the mayor and the notary, as well as those involved in local defence administration and disaster management
IV.	Tasks of disaster preparedness for teachers and students
V.	Tasks of informing public

*Note.* Table prepared by the authors.

### *Future challenges*

The future research topics of the Civil Protection Unit will be determined by the tasks assigned to it under the European Union's Civil Protection Mechanism, which will focus on improving the coordination of responses to natural and man-made disasters. The Mechanism aims to strengthen cooperation between national civil protection authorities, to increase public awareness and preparedness for disasters and to provide rapid, effective and coordinated assistance to the countries concerned. In December 2022, the Council of Europe adopted new rules to ensure that critical sectors such as energy, water, transport and health are able to prevent, protect against, respond to, manage and recover from hybrid attacks, natural disasters, terrorist threats and public health emergencies.

The new rules aim to reduce the vulnerability of critical organisations and increase their resilience. Critical organisations provide essential services that are crucial to vital social functions, economic activities, the health and safety of the public and the maintenance of the environment. Under the new rules, critical organisations will have to identify relevant risks that could significantly disrupt the provision of essential services, take appropriate measures to ensure their resilience and report disruptive events to the competent authorities.

In addition to the above, the recommendations issued by the European Commission, which set out five EU objectives for disaster resilience in the field of disaster management, are of particular relevance for the research directions of the group.

The first objective is to improve risk assessment and disaster risk management planning to anticipate disasters. The second objective is to increase preparedness by raising public awareness and preparedness for risks. The third objective is to improve disaster preparedness and early warning. The fourth is to improve disaster response by broadening the response capacity of the EU Civil Protection Mechanism. While the fifth objective is to enhance the disaster resilience of EU Member States by ensuring a robust civil protection system. The adoption of international best practices related to civil protection tasks of disaster management and the contribution to the development of procedures and methods will be a major support to further refine national legislation to ensure a high level of protection of the population and the environment.

## **Status and development of scientific research on fire protection**

The changes of our times are also challenging the field of fire protection. An analysis of the statistics shows that the number of fire brigade interventions tends to decrease in the case of fires, while the number of technical rescues is definitely increasing (Kersák, 2021). The data also show that some types of damage show only minor fluctuations, while others, such as outdoor fires and storm damage, fluctuate widely. The latter show a strong correlation with different weather phenomena, such as drought following rainfall deficits, as well as excessive rainfall and storms (de Rigo et al., 2017; Turtle, 2021). Experts expect an increase in both cases due to climate change. Fire safety in the built environment faces different but no less important challenges. These are generated by two main factors. One is that society's expectations of safety, including fire safety, are becoming ever higher (Hadnagy-Imre, 2007), while the other is that the unconventional forms of modern architecture demand innovative solutions in the field of preventive fire protection (Veresné Rauscher, 2021). The forms of responses to these challenges are manifold, of which information technologies are now clearly at the forefront (Érces, 2023). In addition to the above, the challenges of fire investigation are also noticeable, as both fire prevention and damage intervention can be made more effective if the lessons learned from fire investigation are properly evaluated and appropriately translated into practice (Nagy, 2020).

### *Research activities of the Fire Protection Unit*

The research pillars of the Fire Protection Unit follow the main lines of fire protection, focusing on the areas of preventive fire protection, rescue fire protection and fire investigation.

One direction of research on preventive fire protection is to intensively integrate the potential of information technology already in the design phase of buildings. This is the future-oriented optimisation of building processes, which, unlike in the past, also offers completely new possibilities in the field of preventive fire protection.

In the process, abbreviated BIM (Building Information Modelling/Management), the design of a building can be visualised in 3D and, by further integrating time and cost factors, the model can be progressively transformed into a 4D or 5D model. Both passive and active fire protection systems can be integrated into the design process, so that the costs can be optimised not only during the construction of the building, but for the whole life cycle (Érces, 2023; Érces et al., 2023). One of the other research activities of the unit on preventive fire protection focuses on the investigation and development of the effectiveness of fire protection coatings in the context of international cooperation. Recent studies show favourable results for the application of phytic acid to fabrics and zinc oxide to wood surfaces (Sykam et al., 2021; Öhrn et al., 2023). Linked to this process is the launch of the BSc in Fire Protection Engineering in September 2022, organised by the KVI (Cséplő, 2018).

The challenges of rescue fire protection are generating research and development in both firefighting and technical rescue. These are essentially focused on improving the security and efficiency of intervention. The need to improve fire safety in the built environment is justified by the recent fires in several mid-rise and high-rise buildings where the overall level of fire safety was considered high or at least acceptable (URL6; URL7). A further challenge is the expansion of urban residential areas into forested environments, where society's nature-oriented lifestyle can clearly pose a higher fire risk if appropriate precautionary measures are not taken. As a result of the work of researchers in this group, several such areas have already been identified in Hungary (Bodnár, 2023). In the future, the study of these areas will clearly be more important in Hungary, following international trends, and it is expected that further research will be needed in this area.

Climate change-induced droughts clearly increase both the area burned and the cost of extinguishing them. The reduction of burned areas can be achieved primarily by improving forest fire protection programmes and building up rapid fire detection capabilities (Debreceni & Bodnár, 2023). The latter involves the application of remote sensing-based fire detection, in which the group encourages the involvement of students (Restás et al., 2022). The study of forest fire protection programmes and the exploration of improvement options is currently being carried out in the framework of a PhD programme, the results of which are expected in the form of a thesis in the near future.

The effectiveness of firefighting can be increased by increasing the amount of existing technical equipment and the range of applications, and by introducing solutions that have not been used before and developing new ones. The increase in quantity is a technical issue – it is dealt with by the NDGDM – and the focus of the research of the group is therefore on the expansion of application possibilities and the search for new solutions. The unit also places considerable emphasis on the optimal use of respirators, which are essential for closed space interventions, and on research into the current capabilities and future potential of thermal cameras, among other things, as part of the more efficient use of existing technical tools (Pántya, 2023; Tomka & Pántya, 2023). A further direction for research into new solutions is to investigate the efficiency of unmanned devices and the possibility of introducing them, and to develop topic-specific ground and aerial robotic devices for firefighting (Bodnár, Restás & Xu, 2018).

As the third pillar of fire protection, fire testing will also be a priority in the work of the unit. One very interesting topic is the security of equipment with open combustion chambers. One of the insights of the researchers is that the mechanism of carbon monoxide formation is completely different from what has been described so far, so that the issue of equipment safety will probably have to be reconsidered in the future (Rácz, 2023).

Future tasks include the preservation and further development of the achievements of higher education in law enforcement, and the strengthening and development of its scientific background in addition to the educational tasks of the newly launched engineering education (Vass, 2018).

## **Summary of industry safety research results and development opportunities**

The main objective of the research of the Industrial Safety Unit is to solve the technical, managerial and organisational problems arising from the technical, managerial and scientific tasks of the industrial safety authorities and specialised tasks integrated into the unified disaster management system. The new industrial safety tasks and competences that have emerged in the organisation of disaster management pose a new challenge to education and research.

Among the objectives of the research topics, the need to improve the organisational and institutional system of disaster management authorities and the professional need to move from a culture of intervention to a culture of prevention have also become more prominent. The research themes now include research tasks related to the development of the legal, institutional and instrumental

framework of disaster management authorities in the field of water management and water protection.

The supervisors of the research topics are mainly from the teaching staff of the KVI, from the field of disaster management and from the economic organisations implementing industrial safety obligations, and are all PhD holders.

Recent research results include a study on the research and development of technical technological tools for industrial safety in disaster management (Zsitnyányi, 2022).

There are also similarly important results in research on industrial safety activities for strategic purposes related to the sustainable operation of energy systems (Sibalin, 2023). The PhD thesis on nuclear emergency management requirements for nuclear power plant construction (Antal-Farkas, 2023) or research on the application of intelligent detectors and systems for military and disaster management (Petrányi, 2021) have also produced important research results.

### *Industrial safety research and development directions and trends*

The main development directions of industrial safety research are primarily related to the development trends in the fields of industrial safety, the problems of law enforcement in public administration organisations, and the technical, procedural and methodological underpinnings of industrial safety authority and operational tasks.

In the field of hazardous operations and transport, specific research tasks are influenced by global and European environmental and energy changes in industry, transport and logistics.

Changes in the structure of the domestic manufacturing and production industries and the emergence of new hazardous activities are both characteristic of hazardous activities involving hazardous substances or waste. An excellent example is the response to changes in the industry safety associated with battery production, the manufacture of electric vehicles and the management of battery waste. The same applies to the industrial safety challenges associated with the emergence of new technical and safety solutions to improve the safety of nuclear energy and the development of nuclear power plants.

The content of the research tasks is also determined by the changes in the international and European regulatory framework, which generate continuous institutional development tasks in the case of the regulation of critical systems and facilities in Hungary as well. This is complemented by the definition of technical requirements on a scientific basis to ensure the development of sector- and subsector-specific risk analysis procedures and methodologies, and the

modernisation of the documentation system based on these. Increasing the resilience of critical entities and essential services to external security, environmental and societal impacts is an additional task for researchers.

The adaptation of international and national good practices, operator safety solutions and state-of-the-art technical tools related to the industrial damage control tasks of disaster management can significantly help to minimise the risks inherent in hazardous activities.

## **Exploring the potential of fire engineering research**

The formation of the Fire Protection Engineering Unit of the Disaster Management Section of the MRTT in 2023 was based on the launch of the Fire Protection Engineering bachelor's degree course organised by the KVI in the autumn semester of the academic year 2022/2023. Of course, the most significant and comprehensive training development task for the relevant lecturers of the group was the preparation of the documentation related to the professionalisation and start-up of the bachelor's degree in fire protection engineering and its approval by the Education Office after the approval of the university forum system. Part of the justification for the establishment of the engineering course was the training needs of the economic operators involved in the implementation of fire safety legislation, in order to ensure the training of highly qualified professionals with the increasingly evolving fire safety engineering competences and design qualifications of the present day. In part, the experience of the NDGDM has also confirmed the need, as the professional disaster management bodies also need to employ fire protection engineers with the same level of qualification as the professionals of the economic operators concerned (Cséplő, Kátai-Urbán & Vass, 2018).

The purpose of establishing and starting a bachelor's degree in fire safety engineering is essentially related to the competences and knowledge required to perform the following engineering (technical) activities. Such competences and knowledge are required to carry out the activities of a fire protection designer, a fire protection expert, a designer and constructor of fire protection for buildings, fire-fighting equipment, industrial fire protection, fire testing, fire protection installations, to work in the fire protection branches of business organisations and to work in the professional fire protection engineering sector of the professional disaster management services.

The quality of the training is ensured by the subject structure approved by the Hungarian Accreditation Committee for natural sciences, economics and

humanities, fire protection technical basic knowledge and fire protection engineering knowledge (URL2).

The main professional task of the group was to start the preparatory tasks related to the establishment and launching of the four-year master's degree in fire protection based on the bachelor's degree in fire protection engineering, which was started in the academic year 2022/2023. The launching of the master's programme is necessary in order to develop a comprehensive portfolio of engineering education, thus ensuring the long-term supply of engineering specialists in both the economic and disaster management fields and the possibility of obtaining PhD degrees in the doctoral schools of the Ludovika University of Public Service. The establishment of the master's programme in fire protection engineering and its launch in the academic year 2026/2027 is supported by the stakeholders in the building industry and fire protection, as well as by the NDGDM.

In 2023, the unit has developed the training and outcome requirements for the specialised further training course for the technical manager and technical inspector responsible for fire protection, as well as the related curriculum and examination requirements, which have been reviewed under the guidance of the NDGDM. Representatives of the Fire Protection Sections of the Hungarian Chamber of Engineers and the Hungarian Chamber of Architects, as well as the Hungarian Fire Protection Association were involved in the consultation. The need for the training was based on the cooperation agreement concluded in 2023 between the Ludovika University of Public Service and the National Federation of Hungarian Building Contractors, which aims to fill the shortage of specialised technical experts in the field of fire protection in the construction industry. The one-year training is scheduled to start in February 2025.

#### *Future research directions of the unit*

The fundamental objective of the Fire Protection Engineering Unit is to find innovative engineering solutions to social and professional fire protection problems through scientific research. The aim of the unit is to follow the accelerating technological development of today's world in the field of education and curriculum development with a technical approach and the complex application of engineering methods.

The first decades of the 21st century have witnessed the emergence of fire safety challenges worldwide that require engineering solutions. In Europe, the protection of an ageing society requires new engineering solutions for fire safety that go beyond the solutions used so far. The European Fire Safety Alliance (EFA) has

highlighted in its Fire Action Plan the importance of protecting people aged 65+, with particular emphasis on the importance of increasing the ability to escape, which requires engineering solutions (URL3). Another major challenge today is the many engineering challenges posed by the energy transition, to which researchers must provide adequate answers to ensure the safety of society (URL4).

In addition to researching solutions to technical problems, it is also necessary to find engineering solutions to social difficulties. In this field, the primary objective is to raise public awareness of fire safety and to promote a higher level of fire safety culture, starting from the youngest possible age. Researchers can contribute in particular to the scientific basis and technical preparation of the work of the National Fire Prevention Committee (URL5).

In the analysis and development of innovative engineering methods, the main focus is on applied research into modern software solutions. Modern engineering and research is fundamentally data-driven. An accurate and data-driven approach to engineering is not new, but the challenges posed by applied methods, software and artificial intelligence (AI) require research into new perspectives. CAD-based engineering data-driven modelling, building information modelling, parametric design methodologies are the latest challenges that all engineering activities are facing today and are expected to be taken to the next level, and research in these areas is therefore a priority. Data-driven models are of fundamental importance in the field of generative and rapidly evolving applications of AI. Nowadays, the first engineering AI algorithms are emerging, albeit in an initial phase, which offer almost infinite possibilities in the context of parameterised data. The future goal of the group is to build an engineering database and thus to research the development of AI integrated into modelling, computer fire, smoke and evacuation simulations (Zeng et al., 2022).

In the field of education, there is currently a lack of up-to-date textbooks and textbooks on modern fire prevention that meet the challenges of the times. Up-to-date and high-quality teaching materials are essential for university education and professional self-training. The textbooks and manuals available are outdated and old. They no longer meet the requirements of modern legislation or the technical content of today's world, and their replacement is therefore of the utmost importance. The aim of the unit is to participate in the preparation and scientific support of educational materials. In addition to traditional textbooks, technical exercise books and university teaching notes, the aim is to develop modern, creative teaching materials and professional materials. In this area, the main tasks are to contribute to the production of short video content, podcasts on a specific technical topic and the scientific supervision of the content. Today's accelerated technological development and regulation to meet social

and technical needs require not only traditional, textbook knowledge, but also professional and educational material that can be changed more dynamically, updated and updated quickly.

It also has important objectives in this area in the production and ongoing coordination of professional and scientific content for educational purposes (Bray et al., 2023).

In summary, the main future research directions of the unit will be:

- 1) Social challenges, in particular to improve the fire safety of existing building stock used by an ageing society from an engineering perspective.
- 2) Research into technical solutions to the fire safety challenges posed by the energy transition and the rapid development of electromobility.
- 3) Exploring the possibilities for long-term sustainable development of safety, including fire safety, as a fundamental part of sustainability.
- 4) Research into complex innovative engineering methods based on advanced building information modelling using computer simulations.
- 5) Analysis and development of AI-enabled engineering solutions for data-driven, parametric and prompt design methodologies.
- 6) Increasing the fire safety awareness of society.
- 7) In addition to the production of traditional textbooks and university notes to fill the gap, the production of modern, relevant and dynamic educational content.

## Summary, conclusions

In the present study, the authors have reached the following conclusions, by occupational group:

- 1) Effectively preparing the next generation is a shared responsibility and task. Consequently, solutions must be sought jointly at national and international level to ensure that future generations can live in dignity while preserving the natural environment. At the same time, it is at this intersection that the preparation of the population for disaster management will continue to promote the development of an effective safety culture in the field of modern law enforcement education. An important milestone in the future work of the Civil Protection Unit could be the recommendations for the renewal of emergency planning in relation to the strengthening of areas that are also priorities for disaster management resilience.
- 2) The Fire Prevention Unit focuses its research on the future challenges in the fields of preventive fire protection, rescue fire protection and fire

investigation. In building design, the aim is to improve information technology solutions to enhance active and passive fire safety, in rescue fire protection to extend the use of existing technical tools and to incorporate new technical solutions to make interventions more effective, and in fire testing to modernise the testing procedures and methodological processes to improve legislative and enforcement activities.

- 3) The directions of industrial safety research are primarily influenced by our changing global environment, the emergence of new industries, changes in international and EU regulations, the requirements of building a technical, procedural and methodological framework for law enforcement, the solution of which is reflected in the scientific problems that arise, among others, in the research activities of the members of the Industrial Safety Unit.
- 4) The great potential of the future will be the significant professional and scientific research potential of fire safety engineering education, which, in the authors' view, can be used in the medium term in the context of the master's degree in fire safety engineering and the new social and digital challenges in the field of engineering and technology.
- 5) The PhD doctoral training in disaster management is carried out in the Ludovika University of Public Service's doctoral schools of specialised training and can effectively contribute to the development of research results in disaster management and the development of legal, institutional and instrumental systems in disaster management.

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URL1: *MRTT Katasztrófavédelmi Tagozat*. <https://rendeszet.uni-nke.hu/tagozatok/katasztrofavedelmi-tagozat>

URL2: *Tűzvédelmi mérnök alapképzési szak*. <https://kvi.uni-nke.hu/oktatas/tuzvedelmi-mer-noki-alapkepzes>

URL3: *European Fire Safety Alliance: Fire Safety Action Plan*. <https://www.europeanfiresafetyalliance.org/wp-content/uploads/2020/04/European-Fire-Safety-Action-Plan.pdf>

URL4: *Fire Safety – Know the facts*. <https://www.firesafeurope.eu/facts-figures>

URL5: *Országos Tűzmegeelőzési Bizottság*. <https://www.katasztrofavedelem.hu/65/orszgos-tz-megelzsi-bizottsag>

URL6: Reporting from Valencia, Spain. <https://www.nytimes.com/2024/02/24/world/europe/fire-valencia-spain.html>

URL7: *Grenfell Tower Fire. Preliminary Report.* [https://www.london-fire.gov.uk/media/5087/gtirt19-01534\\_grenfell\\_tower\\_fire\\_preliminary\\_report\\_final.pdf](https://www.london-fire.gov.uk/media/5087/gtirt19-01534_grenfell_tower_fire_preliminary_report_final.pdf)

## Laws and Regulation

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Act CXXXVIII of 2011 on disaster management and amending certain related acts

Act XCIII of 2021 on the coordination of defence and security activities

## Reference of the article according to APA regulation

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