

## STRUCTURAL AND OPERATIONAL MODEL FOR VOLUNTEER FIRE BRIGADES

### AZ NKNTES TZOLT EGYESLETEK SZERVEZETI S SZERVEZETI S MKDSI MODELLJE

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#### Abstract

*Today's modern societies may not be lacking organisations with professional readiness set up for protection against fires, i.e. fire departments. In addition to career and full-time fire departments, volunteer fire departments are present in virtually every country.*

*The author of the present publication gives an overview on possible structural and operational model for Hungarian volunteer fire brigades.*

*"This work was created by commission of the National University of Public Service under priority project KFOP-2.1.2-VEKOP-15-2016-00001 titled "Public Service Development Establishing Good Governance" within the scope of Gyz Concha Doctoral Program."*

**Keywords:** *volunteering, volunteer fire brigade, disaster management, technical supply, financing*

#### Absztrakt

*Napjainkban a fejlett rsadalmak nem nlklzetik a tz elleni vdekezsre ltrehozott, szakmailag felkszlt szervezeteket, a tzoltsgokat. A hivatsos, illetve ffoglalkozs tzoltsgok mellett, az nkntes tzoltsgok is jelen vannak szinte minden országban. Szerepk, jelentsgk eltr, ezt szmos tnyez befolysolja.*

*Jelen publikciban a szerz ttekint rtkelst ad a hazai nkntes tzolt egyesletek lehetsges szervezeti s mkdsi modelljrl.*

*"A m a KFOP 2.1.2-VEKOP-15-2016-00001 azonostszm, „A j kormányzst megalapoz kzszolglat-fejleszts” elnevezs kiemelt projekt keretben, a Nemzeti Kzszolglati Egyetem felkrsre a Concha Gyz Doktori Program keretben kszlt."*

**Kulcsszavak:** *nkntes tzolt egyeslet, diszlokci, nll beavatkozs, tzolts, mszaki ments, egyttmkds*

## INTRODUCTION

According to Act CXXVIII of 2011 on Disaster management and on amendment of certain acts pertaining thereto (hereinafter referred to as the Disaster Management Act): *Disaster management is a matter of national scale. Uniform control of prevention and counter measures are responsibilities of the Hungarian state.* [1]

Nonetheless, each and every citizen is entitled and obliged to take part in disaster management. Moreover, protective and relief measures must be ensured through coordination of designated agencies and various relief regimes ... *involving volunteer organisations and designated public bodies.* [1]

The principle of “volunteering” may also be found at municipal fire departments (hereinafter referred to as ÖTP) operated as public bodies and volunteer fire brigades (hereinafter referred to as ÖTE); however, only the later are characterised by the classic volunteer operation. This publication aims to deal with the situation of volunteer fire brigades and the possibilities of their future development.

The up-to-dateness of the matter is particularly offered by the Disaster Management Act having entered effect on 1 January 2012. The unprecedented scale and significant of organisational changes in recent decades suggests, while the legislative efforts establish an opportunity for legal settlement of the status of volunteer specialist organisations and for elaboration of a uniform system of requirements and subsidies.

This publication examines the areas and phases of disaster relief in which volunteer fire brigades may be engaged and planned. Furthermore, I will examine the setting up of volunteer fire brigades to improve territorial coverage and the efficiency and time requirement arising from any changes in dislocation. An additional objective of mine is to study the implementation of central subsidies to volunteer fire brigades.

## ANALYSIS OF REGULATIONS AFFECTING VOLUNTEER FIRE BRIGADES

The operation of volunteer fire brigades is essentially determined by the following legislation. Act CLXXV of 2011 on the right of association, on legal status of public benefit, and on operation and subsidies of non-governmental organisation. This Act defines the notion of *non-governmental organisations* and unambiguously includes *associations* registered within Hungary. Associations manage their funds independently with view to the implementation of their aims laid down in their deeds of association. Statutory control over the operation of associations is exercised by the public prosecutor’s office pursuant to the stipulations of the Act on the public prosecutor’s office. Provisions on legal status of public benefit, operation of organisations of public benefit and on subsidy details in Chapter VIII of the Act are of importance. [2]

Act LXXXVIII of 2005 on volunteer activities of public interest [3] is worthy of mentioning among relevant regulations since the scope thereof includes activities pursued as volunteer and facility firefighters pursuant to Section b) of Paragraph (1) of Article 1.

Act XXXI of 1996 on Protection against fires, technical rescue, and fire departments. Fire Protection Act (hereinafter referred to as the Fire Protection Act) [8]. This Act has been amended by the Disaster Management Act simultaneously annulling Act XXXIII of 2008 on volunteer fire brigades. Article 33.

According to the current definition of the Fire Protection Act: *volunteer fire brigade: a non-governmental organisation participating or taking part in the fulfilment of fire prevention, firefighting and technical rescue tasks that has set forth such activities in its deed of association* [4].

Article 28 thereof stipulates it within the activities of local municipalities pertaining to fire departments that the council of representative of local municipalities shall contribute to maintaining volunteer fire brigades – if any, operating within their respective jurisdictions – may take part in setting up volunteer fire brigades, and participate in maintaining, operating, and improving volunteer fire brigades participating in the fulfilment of firefighting and technical rescue tasks [4].

The amendment of the Fire Protection Act in 2013 [5] may be regarded as a milestone whereby Article 33 of the Act distinguishes detailed rules pertaining to volunteer fire brigades.

### **Participating volunteer fire brigades**

In the course of their specialist activities, within the scope of firefighting and technical rescue activities, participating volunteer fire brigades shall

- a) forward emergency calls received to career fire departments or municipal fire departments;
- b) make their best efforts until career fire departments or municipal fire departments arrive on scene to prevent further spreading of fires, to extinguish fires, to assist injured or otherwise jeopardised people, to prevent accidents;
- c) request those noticing an event to remain on site and those present on site to participate in assistance within the scope of their general obligation to provide assistance;
- d) participate in firefighting or technical rescue after the arrival of career fire departments or municipal fire departments on the scene in line with the instructions of the office in charge of firefighting or technical rescue.

### **Intervening volunteer fire brigades**

Intervening volunteer fire brigades pursue firefighting, technical rescue tasks independently within their respective areas of operation undertaken pursuant to agreements concluded with the head of the territorial agency of the career disaster management agency under approval by the head of the central agency of the career disaster management agency.

Agreements on cooperation concluded with intervening volunteer fire brigades must specifically resolve the method of fulfilment of specialist activities fulfilled independently.

It is of particular importance that the Fire Protection Act introduces the notion of *intervening volunteer fire brigades*: association fulfilling firefighting, technical rescue tasks pursuant to agreements concluded with career disaster management agencies within their respective areas of operation.

The sections of the Fire Protection Act referred to feature numerous progressive provisions with regard to specialist cooperation between career disaster management agencies and volunteer fire brigades, specialist and economic support to such associations; however, it still remains unsettled that volunteer fire brigades must be handled by the legislator as “non-governmental” organisations according to their legal status.

Articles 33 and 34 of Government Decree 239/2011. (XI. 18.) on rules pertaining to municipal and facility fire departments, and on contributions to operating career, municipal and volunteer fire brigades stipulates detailed rules pertaining to volunteer fire brigades, thus, in particular: [6]

- Contribution to maintaining volunteer fire brigades participating in the fulfilment of firefighting, technical rescue tasks shall be set forth in an agreement concluded between the council of representative of the municipality providing such support and the relevant volunteer fire brigade.

- The extent of contribution by the municipality shall be determined in line with the personal and material conditions required for the basic fulfilment of tasks undertaken by the relevant volunteer fire brigade.
- In addition to financial contribution by the municipalities, forms of support shall include the provision, construction or reconstruction of a fire house, undertaking of the operation of such, the procurement or transfer for use of assets and inventories facilitating specialist activities, which needs to be featured in agreements concluded between municipalities and career fire departments, municipal fire departments or volunteer fire brigades.

Directive 3/2013 of the National Director General for Disaster Management of the Ministry of the Interior on disaster management responsibilities of support, firefighting specialist management and supervision of volunteer fire brigades. [7] Although not qualifying as legislation, this Directive is extremely important with respect to presenting detailed rules within the legislative framework. A good example of this intention is the presentation of specialist details in sectoral management directives, measures suitable for rapid follow-up of practical experiences instead of “inflexible” legislation.

This Directive primarily resolves

- the legal status, role and scope of specialist activities that may be pursued by volunteer fire brigades;
- facilitation of the work of volunteer fire brigades (career fire departments, Hungarian Firefighters’ Association, etc.);
- use of uniforms, ID cards and sirens;
- rules of utilising calls for applications;
- specialist supervision and assessment of activities of volunteer fire brigades by career disaster management agencies;
- joint specialist efforts, agreements on cooperation between volunteer fire brigades and career fire departments constituting an essential criterion for applications, while an annex to this Directive features the template documents of such agreements;
- the category of such agreements on cooperation is determined by the staffing and assets available to volunteer fire brigades:
- Category I: volunteer fire brigades must have a firefighting vehicle equipped with a siren and pursues specialist activities using standardised and inspected specialist equipment;
- Category II: volunteer fire brigades must have a firefighting vehicle or a vehicle without a siren suitable for transporting specialist equipment required for firefighting and technical rescue, extinguishing agents and firefighting staff while pursuing specialist activities with no standardised and inspected specialist equipment;
- Category III: volunteer fire brigades without firefighting vehicle or vehicle compliant with Category II above while pursuing specialist activities with no standardised and inspected specialist equipment;
- Category IV: volunteer fire brigades pursuing no specialist activities but actively engaged in youth-educating and tradition-preserving activities. [7]
- notification of volunteer fire brigades via an alert system (Pajzs – Shield) within their respective areas of operation undertaken on incidents requiring firefighting interventions;

- contents of such SMS notifications, such as the address and brief description of an incident, the alert category and the code names of units deployed.

It may be claimed that regulation pertaining to volunteer fire brigades are essentially not different from the practices of recent years, while integrating and at the same time nationally disseminating best practice (cooperation in tasks undertaken, automatic SMS notifications) [8] elaborated and applied previously by the Budapest Fire Department (FTP). At the same time making further progress with a view to standardisation (uniforms, ID cards, etc.), utilisation of subsidies, personal protective equipment and mandatory life and accident insurance, pinpointing the desire for and intention of further specialist developments.

Directive 2/2014 of the National Director General for Disaster Management of the Ministry of the Interior on activities of *intervening* volunteer fire brigades (volunteer fire department) [9].

The head of the territorial agency of the career disaster management agency (disaster management director) may conclude an agreement with a volunteer fire brigade within the area of operation undertaken thereby for independent fulfilment of firefighting and technical rescue tasks, provided that the respective volunteer fire brigade

- fulfils a system qualification exercise;
- holds an agreement on cooperation of Category I with the career fire department according to the area of operation;
- undertakes annual minimum on-duty hours
  - day-time on-duty period (06:00 - 18:00) minimum: 1500 hrs/year
  - night-time on-duty period (18:00 - 06:00) minimum: 3000 hrs/year;
- provides for deployment of the firefighting vehicle on-duty and at least four intervening volunteer firefighters in the undertaken on-duty hours (at least one of the deployed staff members must have qualifications eligible for being in charge of firefighting and driver of the vehicle must have an aptitude exam of category I for driving vehicles with sirens and operator's type exam valid for the respective a firefighting vehicle);
- possesses the prescribed minimum personal protective equipment and specialist equipment.

At present, since 1 April 2014, 46 volunteer fire brigades have undertaken the fulfilment of criteria entailed by independent interventions. The National Directorate General for Disaster Management of the Ministry of the Interior introduced a mentor system for supporting the activities and for facilitating the specialist and organisations responsibilities of intervening volunteer fire brigades, enacted by Directive 3/2013 of the National Director General for Disaster Management of the Ministry of the Interior on the mentor system supporting the activities of intervening volunteer fire brigades (volunteer fire departments).

## **ROLE OF VOLUNTEER FIRE BRIGADES IN IMPROVING DISLOCATION**

It may be claimed without exaggeration that a new era has begun in the movement of volunteer fire brigades as a consequence to the Disaster Management Act having entered into effect as of 1 January 2012. The Act and its implementing regulations and the specialist directives of the National Director General for Disaster Management of the Ministry of the Interior have created the opportunity for new regulations while the setting up of the organisational system of disaster management necessitated an overview and re-assessment of the roles of participants.

Hungary's fire safety was provided by 96 career municipal fire departments with on-duty service and 16 without such service and 68 volunteer – public body – fire departments until 31 December 2011. [10]

Volunteer fire brigades (hereinafter referred to as VFBs – ÖTE) pursuing firefighting and technical rescue specialist activities hold agreements on cooperation concluded with the respective career fire departments (hereinafter referred to as CFDs – HTP) managing and supervising their work. The number of such agreements increased continually in recent years: 283 in 2010, 315 in 2011, 388 in 2012, 435 in 2013, 471 in 2014, 520 in 2015, 556 in 2016, 602 in 2017.

These figures represent volunteer fire brigades stating volunteer firefighting and technical rescue as designated purpose in their deeds of association. It is not seldom that associations established otherwise for a different purpose, such as auxiliary police or volunteer rescue associations include volunteer firefighting among their tasks; however, this often serves applications for a wider range of available funds.

The importance of the role of volunteer fire brigades is also substantiated by the assessments of the Inspectorate General for Fire Departments of the National Directorate General for Disaster Management of the Ministry of the Interior pertaining to dislocation. The majority (80%) of alerts may be eliminated by a single vehicle with a brigade of six or four firefighters, while an additional 15% of incidents call for only two full brigades (of six firefighters). That is incidents requiring major force and assets make up only 5% of all alerts. [11]

In light of such data, it may be asserted that fire bases (stations, houses, etc.) set up with proper dislocation ensure adequate protection for the fulfilment of firefighting and technical rescue tasks arising. The enhancement of the network of career fire stations commenced in 2012 with the setting up of career disaster management stations. 65 new stations are proposed in areas critical with respect to dislocation in so-called “white spots” ensuring total coverage for Hungary. Simultaneously with the launching of the station program, 5 out of 68 municipal fire brigades (ÖTP) announced the termination of their activities. [12]

In addition to the establishment of career fire stations, a realistic alternative for improving territorial coverage is the increased engagement of volunteer fire brigades in specialist activities as the most cost-efficiently operable units through supporting such organisations.

Such wide-ranging establishment of so-called basic protection reduces the utilisation of “umbrella protection” (by career fire departments, disaster management technical rescue bases) as well, since rapid responders localise fires quickly in an initial stage, thus avoiding the deployment of further units. Impacts thereof, savings thus arising may be calculated and quantified, which should be taken into account when deciding subsidies to volunteer fire brigades (ÖTE). [13]

Hungary's volunteer fire brigade movement – sensing and appreciating central specialist decision aimed at recognition and support thereof – has shown an activity increasing year after year. The pre-requisite of pursuing specialist activities is an agreement on cooperation concluded with the career fire department with jurisdiction over the respective area of operation. It may be concluded that the number of volunteer fire brigades (ÖTE) undertaking specialist activities has increased recently. At present, 602 volunteer fire brigades (ÖTE) hold agreements on cooperation concluded with career fire departments (HTP).

The change in agreements on cooperation concluded by volunteer fire brigades (ÖTE) with career fire departments (HTP) by category is shown in the table below.

Year	Category I	Category II	Category III	Category IV
2013	58	289	88	-
2014	65	299	91	16
2015	82	307	93	38
2016	104	313	109	30
2017	112	332	119	39

**Table 1** Number of agreements on cooperation by volunteer fire brigade (ÖTE) category  
 Compiled by the author, source: Database of the National Directorate General for Disaster Management  
 of the Ministry of the Interior

The table above illustrates a welcome vividness in the volunteer firefighting movement. In addition to the 602 cooperating volunteer fire brigades, career disaster management agencies are aware of another 60 functioning associations, which have not concluded agreements on cooperation. The reason being their lack of requesting the conclusion of an agreement or the career fire department having cancelled the agreement due to inadequate functioning of them. An increase may be observed in every category, justified by their intention of attaining a higher category.

The total number of members of such 662 volunteer fire brigades is over 18,000, including 17,352 at those with agreements on cooperation, of which 8,545 members have undertaken specialist activities. In addition to such membership, over 2,200 youth fire fighters are also part of volunteer fire brigades.

Another important indicator of the activity of volunteer fire brigades is the number of deployments per annum, which increased from 2,460 incidents 2011 to 7,711 2017 representing 10% of all incidents last year in Hungary. This ratio has increased continually with reference to the preceding years. It is remarkable that while the 19 volunteer fire brigades having concluded agreements on cooperation with the Budapest Disaster Management Director accomplished 627 deployments including 207 independent interventions in 2015 [14], already 23 volunteer fire brigades accomplished 841 deployments including 201 independent interventions in 2017.

The SMS-based alert system sends notifications to 6 telephone numbers per volunteer fire brigade, which is significantly assisting the notification of their members, thus shortening their response times as well. In 2017, a total of 177,122 notifications on 30,877 incidents were sent to volunteer fire brigades deployed to 7,711 incidents – which is 25% of notified incidents – representing 8,326 vehicle movements.

Volunteer fire brigades participated in about 10% of incidents last year.

## **OPPORTUNITIES FOR AND DIRECTIONS OF DEVELOPING VOLUNTEER FIRE BRIGADES**

It may be seen that measures so far have caused significant results in engaging the specialist capabilities of volunteer fire brigades in rescue and fire safety operations. In my opinion, qualitative change, progress may, however, be only achieved by renewing, reforming the set of operating conditions. Elements of such set of operating conditions including in particular:

1. organisations operating in an organised and permanent manner;
2. adequate number of trained volunteer firefighters;
3. adequate asset portfolio;
4. efficient alert system;

5. data supply;
6. expansion of the possibility of independent intervention.

In Hungary, volunteer fire brigades are not uniform but vary to a large extent in terms of their organisation, activities, equipment and qualifications. Volunteer fire brigades may be classified into three categories with a view to their distance from fire departments with jurisdiction over their respective area of operation, personal conditions, technical readiness, available vehicle(s) and fire house [9]:

- I. intervening (112);
- II. intervention supporting (332);
- III. developing (158).

Adequate financing is indispensable for the day-to-day operation and in particular the development of volunteer fire brigades (e.g. category change). In general, it may be stated that volunteer fire brigades are vulnerable to local municipalities and uncertain calls for applications, therefore, do not operate in a stable fashion or have absolutely no means to ensure financial conditions required for maintaining their organisations.

Volunteer fire brigades may be placed on solid foundations through the provision of central (state) subsidies required for their operation under sufficient control. One source of such subsidies being, in my view, the reallocation of funds returning due to terminated municipal fire departments from the 2 billion HUF allocated to maintaining municipal fire departments (ÖTP). Addition funds are required to be engaged as well.

Central subsidies are essentially realised in two ways [15]:

*a) normative support:* according to on-duty hours undertaken

Intervening I: annual minimum on-duty hours undertaken: 4500 hours  
170,000 HUF per month per ÖTE,

Intervening II: annual minimum on-duty hours undertaken: 3000 hours  
100,000 HUF per month per ÖTE;

*b) financing through applications:* equipment, personal protective equipment and training required for pursuing specialist activities.

A firefighting basic training (40-hour training course) is prescribed for volunteer firefighters. Such free-of-charge training is organised and examinations are conducted by county directorates.

The Disaster Management Training Centre of the National Directorate General for Disaster Management of the Ministry of the Interior (BM OKF KOK) has compiled the set of uniform requirements and training materials required for uniform training, while training has become more regulated as well. The launching of a modular follow-up 340-hour firefighting chief and the establishment of conditions thereof is regarded as a substantial achievement.

The National and Territorial Health, Psychological and Work Safety Service Centres could offer free-of-charge aptitude testing (health care and blue-light-siren – PAV) for volunteer firefighters undertaking specialist activities and holding relevant qualifications to ensure standardised health aptitude of the volunteer force. Free-of-charge PAV (blue-light-siren) driver's testing is currently available through applications for 1 or 2 member(s) per volunteer fire brigade [15].

Replacements must be provided for to retain adequate volunteer firefighter organisations. Organisation and preservation of the youth firefighter movement requires:

- contacting educational institutions;
- facilitation and motivation of youth sections at volunteer fire brigades;



- supporting and training uniform youth firefighter organisations;
- rendering fire safety training mandatory in secondary schools (clubs, specialisation);
- organising youth firefighter events, meetings, bottom-up competitions.

The Technical Department of the National Directorate General for Disaster Management of the Ministry of the Interior has completed the assessment of the assets of volunteer fire brigades as extremely heterogenous, which renders their operation, revision and repairs rather difficult, while resulting in the lack of compatibility with cooperating organisations (career and municipal fire departments – HTP, ÖTP).

It is a clear-cut experience that volunteer fire brigades face the purchasing and provision of vehicles and specialist equipment as major and often unaffordable expenditures.

At the same time, it may be claimed that they are able to ensure the preservation of condition and the repairing of their incumbent vehicles inexpensively through their local contacts and own specialist knowledge.

The most efficient method of supporting and even facilitating the establishment of new volunteer fire brigades is primarily through the transfer of assets implemented essentially in two ways:

- In the course of career unit asset development, volunteer fire brigades may apply for equipment renewed or awaiting renewal as returned by career fire departments;
- Evaluation of the possibility of the production of firefighting vehicles designated specifically for volunteer fire brigades by domestic manufacturers and engagement of EU funding. (As happened in Slovakia and Poland in recent years to provide volunteers with a large number of standardised vehicle fleets).

Minimum requirements concerning equipment have been set for volunteer fire brigades with independent intervention rights.

Annual authorisation of blue lights and sirens for vehicles of volunteer fire brigades with agreements on cooperation that may be engaged in firefighting and technical rescue need to be simplified [16].

Volunteer fire brigades undertaking specialist activities and concluding agreements on cooperation may only be alerted by ensuring communication channels. Considering the lack of permanent call desk officers at volunteer fire brigades, adequate and permanent communication is primarily implemented through the Uniform Digital Radio System (EDR), depending on coverage.

The volunteer fire brigade sets the status of deployable vehicle(s) as “deployable via radio” or as “non-deployable” in the Disaster Management Data Supply Program (KAP), which is forthwith seen by mission control. Accordingly, the “mobile call desk officer” of the volunteer fire brigade may be alerted via digital radio with simultaneous notification of the respective career fire department (HTP). Deployed members of the volunteer fire brigade are alerted via their own system (SMS, telephone, pager, etc.).

Presence of up-to-date information on personnel, assets and equipment is indispensable for uniform command of volunteer fire brigades. Volunteer fire brigades may request KAP access and the database feature the vehicles of volunteer fire brigades.

The unit’s datasheet is completed by the volunteer fire brigade (ÖTE) itself or by the career fire department (HTP), on the basis of which deployment details of a particular volunteer fire brigade may be retraced. A uniform electronic, dynamic database would enable career agencies with up-to-date information while volunteers would be assisted in keeping records of their members and assets.

Volunteer fire brigades with members performing direct intervention holding prescribed specialist qualifications, standardised and inspected equipment, standing by firefighting vehicle equipped with blue light and siren shall execute an initial and thereafter annual qualification exercises to allow for evaluating the specialist readiness of members, assets and equipment, and the firefighting command aptitude of their chief(s). Upon successful completion of such exercises, the volunteer fire brigade will be awarded firefighting command eligibility and an area of operation where it may pursue independent firefighting interventions as well. [17]

Independent interventions by volunteer fire brigades are mainly possible during incidents entailing no direct threat to lives: outdoor fires, fires of auxiliary buildings, removal of water, fallen trees, animal rescue.

The prerequisite of incidents that may be eliminated by independent intervention is the volunteer fire brigade having a staff and the assets required for elimination of the incident and the relevant qualifications.

It is always indispensable for the organisation alerting the volunteer fire brigade to have adequate information on the particular volunteer fire brigade (deployability, staff and assets, etc.) and the respective career fire department being notified on the incident simultaneously with the volunteer fire brigade. The state-of-the-art alert and incident communication and data supply systems (KAP Online, PAJZS – Shield, etc.) under ongoing development described above aim to serve this purpose.

In case of independent intervention, SMS notification is not sufficient due to its uncertainty factors (arrival, detection, precise transmission, etc.) but must also be supplemented by EDR communication as well, e.g. alert being radioed and copied (confirmed).

The so-called “initial qualification exercise” required for *independent intervening* was first administered by the Budapest Disaster Management Directorate on 28 April 2012 during the National Day of Police Officers and Firefighters in Városliget (City Park) for volunteer fire brigades within its area of operation holding agreements on cooperation. [14]

The exercise aimed to qualify volunteer fire brigades in order to assess their intervening capabilities in executing two types of technical rescue and firefighting tasks in strict compliance with the specialist requirements of BM Decree 39/2011 (XI. 15.) of the Minister of the Interior on general rules of fire safety and technical rescue operations of fire brigades in effect of the specialist directives of the National Directorate General for Disaster Management of the Ministry of the Interior on firefighting and technical rescue.

The firefighting exercise included the laying of a base line with two nozzle lines followed by entry through a door into closed space, fighting fire and rescuing people inside while using full personal protective equipment and breathing apparatus.

The technical rescue’s scenario featured the extrication of an injured person stuck inside a vehicle after cutting the roof columns and removing the roof of the vehicle to demonstrate the regular and skilful use of spreader-cutter tools and of personal protective equipment along with the stabilisation of the vehicle and the securing of the scene of the accident.

It may be claimed that the exercise – visited by Hungary’s Minister of the Interior and the Director General of the National Directorate General for Disaster Management of the Ministry of the Interior – that, in addition to the extraordinary enthusiasm of volunteers, it reflected their decade-long practical experiences as well. At the same time, verified the impressions gained during day-to-day collaboration such as the highest quality of exercise was demonstrated by Pilisvörösvár ÖTE completion the most interventions per year in Hungary to obtain the independent intervening qualification in both firefighting and in technical rescue.

In addition to independent intervening, the role of participating volunteer fire brigades (ÖTE) may not be neglected either. Based on signals received from settlements (area of operation) undertaken by the volunteer fire brigade (ÖTE), while the career/municipal fire department is alerted, the time elapsing until the commencement of the intervention may be reduced by alerting the volunteer fire brigade, the clarified feedback received from which upon arrival on the scene may facilitate the work of the career unit. Therefore, it is essential that “supporting” volunteer fire brigades (ÖTE) receive alerts concerning its own area of operation (if its status is “deployable”) in every instance.

In order to expand independent intervention eligibility, the National Directorate General for Disaster Management of the Ministry of the Interior established a new intervening category [26] improving the efficiency of rescue and fire safety further. The on-duty hours undertaken in such new intervening category are reduced from 4500 per year to 3000 hours per year to enable even more volunteer fire brigades to fulfil independent interventions.

Introduction of the new intervening Category II is expected to increase the number of volunteer fire brigades with independent intervention eligibility, which in addition to quicker assistance to citizens reduces the deployment load of career fire departments as well.

An additional favourable modification of the current set of criteria is represented by the elimination of the separately prescribed daytime and night-time on-duty hours. In order for intervening volunteer fire brigades to fulfil the prescribed on-duty hours, it was not sufficient to undertake night-time hours only, but daytime hours were also required.

Experiences so far show that daytime and night-time on-duty hours are distributed evenly; therefore, it is not necessary to determine mandatory hours for the two periods, it will suffice to prescribe the total annual hours only. This modification will simplify both the administrative and the inspection activities. [19]

With a view to forthwith notification of volunteer fire brigades, an SMS-based alert system has been set up on a nationwide scale. Initially, notifications were sent to two (2) telephone numbers per volunteer fire brigade, which has been increased to six (6) by now. Another direction of development is to enable volunteer fire brigades to modify or update their own notification numbers continually – even daily – within the KAP system, the required IT improvements are underway.

Introduction of the SMS notification system reduced arrival times – as a key element of successful firefighting intervention. While in 2012 and in 2013, volunteer fire brigades offered assistance in 5% of all firefighting interventions, their deployments in 2017 reached 7,711 representing 10% of all incidents (77,965).

As the SMS service is expanded and improved, accessibility of volunteer fire brigades become more certain and the flexible system enables individuals to receive the career disaster management agency’s notification who is actually and immediately capable of taking action to deploy the respective volunteer fire brigade. System development is expected to increase intervening activities performed by volunteer fire brigades.

In order to facilitate on-site communications, volunteer fire brigades were able in recent years to apply for digital radios to significantly improve information demands and feedback obligations required during firefighting interventions.

The state recognises the importance of volunteer fire brigades by increasing previously stagnating application fund budgets of 120 million HUF per annum to 300 million HUF in 2014, 400 million HUF in 2015 and to 400 million HUF in 2017. This support amount ensured the funding of independent intervening activities from a separate budget allocation.

The annual calls for applications invited by the National Directorate General for Disaster Management of the Ministry of the Interior and the Hungarian Firefighters’ Association for maintenance and revision of vehicles and firefighting specialist equipment and personal

protective equipment owned or used by volunteer fire brigades and for procurement of such allow separate applications for each of these items. All 553 applications received for the calls in the Year 2017 were awarded support.

Significant progress has furthermore been made in improving the readiness of personnel. In addition to the 40-hour basic and the machine operator training courses already organised by the directorates, the Disaster Management Training Centre of the National Directorate General for Disaster Management of the Ministry of the Interior (BM OKF KOK) launched firefighting chief training courses for volunteer fire brigades.

## **CONCLUSIONS, PROPOSED ACTIONS**

In this study besides the priority of interdisciplinary role of military sciences [20] I kept in mind the opinion of Bleszity János and his coauthors that „*disaster management technical research activities serve the increase of resilience against disasters of the society and reducing the vulnerability of such an events*”. [21, p. 225]

Efficient operation of volunteer fire brigades is important in terms of the fire safety and security of every town and village in Hungary. Development of volunteer fire brigades has been served by the regulatory activity pursued continually by the National Directorate General for Disaster Management of the Ministry of the Interior in charge of specialist management since the entry of the Disaster Management Act into effect.

By establishing the predictable and transparent operating conditions for volunteer fire brigades, the proposed regulation ensures their functioning as elements of the fire safety system while designating their place, role and responsibilities within the system in relation to other firefighting entities as well.

The regulated conditions create an opportunity for various career, municipal, facility and volunteer fire brigades to regard each other as partners cooperating in a reasonable sharing of work while supplementing each other's activities. Strengthening the fire safety of the population as a common goal and operation pursuant to the conditions regulated by the act will result improved cooperation in the long run.

Examining the role of volunteer fire brigades played in Hungary's fire safety system, I have reached the following conclusions:

1. With a view to the population's rescue and fire safety, as first responders, they are capable of commencing actions essential to human lives, firefighting and technical rescue within a short period of time.
2. Their better awareness of their locality provides career municipal fire department units with more accurate and relevant information already during fire signalling and en route, while participate in firefighting and technical rescue, or otherwise assist career firefighting units after arrival on scene.
3. Their technical means and members with adequate specialist knowledge render them suitable for involvement in fire prevention actions in addition to participating in rescue and fire safety, and in environment and nature protection, flood and inland water relief efforts.
4. The operation of volunteer fire brigades is economically efficient. Members of volunteer fire brigades fulfilling firefighting tasks do not receive and wage or wage-type remuneration for their efforts. Volunteer fire brigades receive multi-channel financing, including: membership fees, grants, municipal support, budgetary and other funds available through applications, business activities pursued in line with their deeds of association, etc.

5. Volunteer fire brigades traditionally act as community-builders in local communities; thus, among others, may take on a significant role in educating the youth, in establishing a fire safety culture attaining the level expected by Hungary's EU membership.

The functioning of volunteer fire brigades, volunteering are societal values supported by disaster management as well.

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