

NATIONAL UNIVERSITY
OF PUBLIC SERVICE
Doctoral Council

**AUTHOR'S DESCRIPTION OF
DOCTORAL (PhD) DISSERTATION**

**ff Lieutenant-Colonel Sándor Nagy
Fire Service Counsellor**

author's presentation and official reviews of
the doctoral (PhD) dissertation
entitled

**- The development of the risk assessment and risk management related to the protection
of the population -**

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NATIONAL UNIVERSITY OF PUBLIC SERVICE

Fire Service Lieutenant-Colonel Sándor Nagy
Fire Service Counsellor

**„Development of risk assessment and risk management in the light of
protection of the population”**

Doctoral (PhD) Dissertation

Consulting Professor:

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Budapest, 2019.

1. FORMULATION OF THE ACADEMIC PROBLEM

Survival is based on action against threats, so it is as old as mankind. Social development and the emergence of modern states have led to the development of similar state-owned organizations in different nations. Just think about it, we know no truly independent state that does not have an independent army, law enforcement, and today, in every country, there is an organization system that protects the population and material assets from the effects of natural and civilizational disasters, represented by disaster management in our country.

Dangerous natural events increase in number as a result of climate change, and together with the industry that is constantly modernizing and developing in the face of economic competition, they are subject to increasing and changing risks, the identification, analysis and management of which requires unavoidable and continuous activity for protection of life and property security.

An important part of this process is the modernization of risk analysis procedures for the protection of the population by mapping out new risks. Nothing justifies this kind of forced activity more than the dramatic deterioration of the UN's statistical data, which I have already presented above.

At the same time, it can be seen that due to its geographic location, Hungary is partly avoided by the major disasters we are facing, which can be dealt with effectively by our current disaster management organization. However, besides the dangers of civilization, natural disasters, in spite of time, show a constant change in time, even in this relatively protected Carpathian Basin. Just think that in 2013, in the history of Hungary, inundation of the rivers, which normally occurred the beginning of summer, in June, instead of spring and autumn floods, or in the middle of spring 2017, in the second half of April, some areas of the country were heavily affected by an unusual amount of snowfall. So, the question arises as to what we can expect, and how effective the current disaster risk assessment procedures are, and when they can be considered obsolete.

An unforeseen disaster, if unmanaged by any means can claim lives and cause significant economic damage.

These effects are also suitable to crush people's confidence in a strong and caring state, to distrust the government, and to reduce the sense of security of individuals and the community. In order to protect human life, health, material goods, public safety and social order, it is necessary to constantly monitor potential threats, identify the risks associated with them, and develop procedures for their prevention and management. In order to meet the challenges effectively, a well-functioning disaster management system should be used to continuously map out and develop possible new solutions, to study the existing research methods in the interdisciplinary system of disaster management.

By analysing the risk assessment procedures used in the Hungarian population protection practice, as well as by analysing the most important Anglo-Saxon procedures, I believe that the development opportunities with which the Hungarian disaster risk assessment system is more authentic in its content and output results, can also be explored. rather, an appropriate system can be developed, thus serving to increase the security of life and property of the Hungarian population, thereby strengthening public security.

2. HYPOTHESES

In his doctoral dissertation, the author:

1. **Assumes** that the protection of the population is a task, an organization and a system of actions for the protection of human life and vital material assets, which exist in parallel with the activities of damage control.
2. **Assumes** that the range of hazards currently being considered in the disaster risk assessment practice and its application needs to be updated at both national and local levels.
3. **Assumes** that the provision of the Disaster Prevention Act that entered into force in 2012, namely that „*Every citizen or person has the right to be aware of the risk of a disaster in his or her surroundings, to master the applicable rules of protection, and to have the right and duty to contribute to disaster management*” can be demonstrated on the basis of a representative survey
4. **Assumes** that the use of a Fuzzy logical matrix in a risk analysis process that produces three kinds of outputs like the one currently used does not necessarily illustrate the relevant differences resulting from the specificities of the settlements and consequently distorts its results. He wants to prove that these features can be more realistically detected by a numbering system assigned to an enhanced and expanded matrix.

3. RESEARCH OBJECTIVES

The overall objective of the scientific research conducted by the author is to provide an easy-to-use and more objective risk management process for the protection of the population. In connection with this, with the introduction of the more well-known and useful methods of risk management in western countries, highlighting their features and examining their applicability, I have described a new procedure, which I have compared with the current system. Consequently, my research goals are:

- *To describe and analyse* overlaps between the concept of civil protection and a novel interpretation of the protection of the population, to prove the predominance of tasks related to the defence period against prevention.
- *To explore and catalogue* the threats related to the protection of the population
- *To present* the organization and task system for the protection of the population
- *To present* the differences in the currently used hazard source classifications
- *To propose* a new hazard classification
- *To prove* the predominance of natural hazards against technological hazards.
- *To demonstrate* the effectiveness of the preparation of the population disaster management activities.
- *To present and compare* risk management procedures used by us in the field of population protection and other methods used in the practice of well-known foreign countries, primarily the UK and the USA.
- *To develop* a new, more efficient, yet easy-to-use process that better illustrates the differences between settlements

4. RESEARCH METHODOLOGY

During his research, the author sought a scholarly approach to the system. During his research, he placed great emphasis on ensuring consistency between research objectives, the methods used, the conclusions and the scientific results drawn from them. In choosing the methods, he kept in mind the collision between objectivism and subjectivism in risk management procedures, trying to explore the possibilities of using quantitative and qualitative risk management procedures with a holistic approach.

By analysing each of the well-known methods and using the synthesis method, he analysed their interdependence, thereby creating a new, more complex, method that has been proven by induction and deduction procedures.

He also used a questionnaire method to identify the perception of danger by the population, evaluated the questionnaires and used the results to compile a catalogue of sources of disaster risks. In order to achieve these goals, the relevant domestic and foreign literature, studies, manuscripts, laws were collected and analysed, and his experiences were incorporated into his approach. During the comparative analysis he examined the difference between foreign and domestic practices, from which he drew conclusions on possible directions of development.

For a number of domestic event management activities (Danube and Tisza flood control in 2006, Danube flood control in 2013, inland water protection in 2010-2011 in the Szentes area, red mud disaster in 2010 in the area of Devecser and Kolontár, winter 2012 and 2017 extreme weather) (http://www.facebook.com/support/competition/index_en.htm), drew conclusions to identify risks for population protection.

In order to achieve the goals of his doctoral thesis, the author used the following scientific research methods:

- *general*, including the method of induction and deduction, as well as the method of analysis and synthesis;
- *analytical-logical*, which is an integral part of the evaluation of current practice procedures and the formulation of proposals based on the resulting conclusions;
- *empirical*, based on professional experience in the field of research;
- *research of literature and legal provisions*, covering both international and domestic relevant literature and regulations;
- processing my research results, presenting them in publications and presentations at conferences.

5. DESCRIPTION OF THE RESEARCH COMPLETED;

The first chapter of the data collection starts off with the description of the state of the protection of the population, which was expanded in space and time, with the help of which the similarities between western and domestic procedures were revealed in the development of the population protection. It can be seen that the protection of the population is a system of measures that prioritises the protection of citizens' lives and property, which can be divided into three periods.

During the prevention period, the detection, analysis and the evaluation of threatening effects, keeping the relevant risks under supervision and the development of the safety level are acceptable. In addition, there is also a preparatory activity system for building, equipping and training the response forces involved in the activities of the next period, complemented by the organization of alerting for the rescue and rescue forces, and for preparing the population, the dangers in the vicinity, and the harmful effects. standards of conduct and training for survival.

The period of protection begins with the alarm and includes the duration of the evolution of the scene of the event, the rescue as a remediation action, and parallel the classical system of protection of the population, such as displacement, rescue, evacuation and reception.

The task of the restoration period is to provide a viable living environment for reintegration. It is understood as a set of activities that create conditions close to the pre-damage condition for the reintegration of the population and the material assets necessary for subsistence in the area and for staying in place according to the normal way of life. These conditions mean that the administration, the infrastructure and the supply system are put into motion and they are operated.

He then examined the correlation between the tasks of different periods, showed that the classical formulation of population protection only describes a task system characteristic of active operations, which should be complemented in a novel approach with all activities that ensure the success of active operation.

Disaster prevention requires fewer resources than dealing with their effects. Prevention is therefore cheaper and easier: it saves time, hours and energy spent on treatment and recovery. In addition, disaster management is only a unidirectional approach to money and time, as it ignores human aspects. People who have lost their lives as a result of a disaster cannot be brought back to life; their loss is remedied neither by time nor money.

Consequently, any activity that ensures that the protection of the population and the financial resources necessary for subsistence is as safe as possible is of primary importance for the protection of the population, and thus forms an integral part of the protection of the population and this leads to a great overlap of the tasks of civil protection and protection of the population. In his correlation analysis, he showed that the predominance of tasks related to active protective activities continues to prevail over prevention and recovery tasks. This is clearly due to the fact that the risks of natural and industrial risks can be reduced by the prevention method, but no similar prevention rules can be prepared for social risks. During a period of armed aggression population protection prevention tasks are practically exhausted in the design, designation of the survival infrastructure, the preparation of the population and the related planning describing the activity of the active period. Armed aggression can be avoided through deterrence and diplomatic means, while diplomacy cannot be successful against an aggressor if there is no deterrent force in addition to diplomacy that guarantees that any offensive action will be countered with an equivalent response.

Identifying hazards, analysing and managing their risks, such as reducing the impact or likelihood of occurrence, is the basis of the system, since the success of population protection depends largely on activities related to the prevention period.

From the point of view of the protection of the population, the system of *defence administration* is indispensable, which ensures the complex home defence disaster management, public order and civic protection of the state in situations exceeding the regular operating capability, in the periods of the special legal order, supplemented by the establishment of the conditions of the defence economy and emergency supply.

In the second chapter, the author relates in a descriptive way that people's everyday lives are enmeshed and permeated by threats. If there were no threats, there would be no protection of the population, as there would be nothing to protect life and material assets against.

Society, along with its development, is becoming more and more sensitive to environmental hazards. It is easy to understand at the individual level unless we think that in the 18th century human lives were not at risk by a power outage just because there was no electricity supply. It can be stated that, depending on our geographical location, different climatic conditions prevail. In addition to climate differences, geological conditions are also determinative for a given area, so they can be characterised by typical natural hazards.

In addition to natural hazards, the dangers associated with increased industrialization are also on the rise, and its mankind's historical destiny that the settlement of disputes between peoples through violent means, that is, the threat of war and armed conflicts still exists.

By interpreting the concept of security broadly, the concept of security in the lexicon and the concept of the population, he described what we can consider to be the concept of security in terms of population protection. He explained that, from the perspective of the population, security is indivisible, as threats appear in any area, and they can have an impact on everyday life.

He carried out a data collection which resulted in the classification of the hazard categories used in the current legislation and in practice for risk assessments, showing the differences. This has shown that the hazard classifications currently in use are different at national and municipal levels, and even vary periodically. There is therefore a need for a catalogue covering all types of hazards, to which an experiment has been made. When compiling the catalogue, he provided a justification for the taxonomy classification of the sources of threats.

In the grouping according to the natural and civilizational origins, he listed the potential hazards of Central European and Mediterranean, and compiled a hazard catalogue.

In the third chapter, as an introduction to risk analysis after compiling the hazard catalogue, he examined what the most important threats are for the population and for the protection of the population.

To do this he started to collect objective, quantifiable, statistically valuable data. He first made a questionnaire survey to conduct quantitative data collection. For this, paid online services were used, survey participants were able to fill in the questionnaires with the help of the World Wide Web and the service carried out a primary analysis of the data, but carried out further analyses by evaluating them.

The questionnaire survey showed that respondents have a greater sense of fear of natural hazards than industrial hazards. In the questionnaire survey, the responses to the disaster management and defence management issues and the selection of the threatening impacts for

the neighbourhoods of residential environments confirmed that the population preparation activities for disaster management are good.

He then expanded his research and conducted an analysis of international databases. To continue the research, he chose the UN-run EM-DAT database, which first tested the number of natural and technological events in the five continents and the associated losses by filtering the available 118 years of data, particularly the number of deaths.

According to statistical data, 19 deaths were reported in Europe for one natural disaster, while 0.35 were killed as a result of a technological incident. Combinatorial and probabilistic analysis shows that, based on 118-year-old statistics, 2.8 years are needed in Europe to require a technological event to kill. After that, he assumed that the analysis of 118 years of data is a distorted picture due to the non-linearity of industrial and social development, thus narrowing the research to 3 + 1 twenty-year periods. From 1965, he chose three 20-year intervals, while taking into account the two world wars, he also designated a reference range for the period where it was assumed that the technological hazards were not so pronounced. Surprisingly, there was only a higher number of technological events in the reference range, which did not justify the assumption of distortion associated with 118 years of data, thus international data has proven his basic hypothesis regarding the hegemony of natural hazards.

Parallel to this, and as a result of 7 years of research, he has processed nearly 100 international and domestic articles, professional books, standards and laws, the results of which show that risk assessment and risk management has evolved visibly in the financial sector, the founder of which was Frank Hyneman Knight PhD (1885-1972).), an American economist. In Hungarian practice, risk assessment procedures for the protection of the population have already appeared in the post-Chernobyl nuclear disaster, related to the industrial activity related to the protection of the population, however, in the case of natural disasters, the impact and the probability of occurrence has only started with the transformation of the disaster management system after 2010 . Although, according to its rules of procedure, the former legal regulations providing for the protection of the population cannot be considered as risk analyses, the current system could not have developed without them, therefore, from the point of view of the history of development, Government Decree the 114/1995. (IX. 27) on the civil protection classification of the municipalities and the requirements of protection, and MoI Decree 20/1998. (IV. 10.), on planning related to it, are of paramount significance from the point of view of the fact that a kind of risk analysis procedure has been linked to them.

By analysing international procedures, especially the ground-breaking Anglo-Saxon procedures, the author found that they grew into two major trends that were named qualitative and quantitative. The fundamental difference between the two is that there is sufficient statistical data available in the quantitative procedures to objectively calculate the range of the outcome, and in this case the focus is on the range, the quantitative process does not give a concrete result, only one target group within which the outcome is expected. It is important to note that computability is already a mathematical basis here. In contrast, in quality procedures, we use a kind of logical-semantic decision matrix based on the blurred set theory, called Fuzzy logical system. The basis for quality risk assessment procedures is the matrix that provides a combination of impact and probability analysis.

His research has also shown that the specialization of risk management procedures has started in the UK and in the USA, special procedures have been developed, for example, Enterprise Risk Management (ERM), Strategic Risk Management (SRM) for non-business purposes. literally profit-oriented risk management such as Composite Risk Management (CRM), which is used by the US Army, along with the first disaster risk management procedures (DRM).

Building on the European Union's regulatory mechanism, it has been argued that the modernization of risk assessment procedures at the municipal level is appropriate, as national risk assessments must also meet specific requirements as a result of EU membership.

The author developed and presented a new set of procedures in which a 5x5 cell matrix could be used to assess the risks of remaining hazards, in compliance with special conditions. He also described the procedure for using the matrix, including the method of estimating the expected effect and its weighting, and also described the rules for determining probability of occurrence. He presented the use of the matrix through examples to help understand his concept. The specialty of the procedure described is that, in order to show the differences between the settlements, the risk output strategy was described with the numbering system (relative numbering) based on the experience of the four matrix cells (extreme, high, average, low).

Risk reduction is the basic strategy for the protection of the population, aimed at reducing the risks to an acceptable level, primarily through the development of capabilities of the authorities, secondly through the development of response capability. Response capability does not affect the occurrence of the threatening effect, but at the same time it reduces the severity of the incident and the extent of the damage inflicted.

A scoring-based system of rules for describing the values of relative numbering has been described, for which the author has presented the protection requirements he proposes and its possible directions of improvement.

6. SUMMARIZED CONCLUSIONS

1. Instead of the classical approach to active population protection tasks, it is appropriate to deal with the extended task system today, which complements the active procedure both with activities that ensure successful implementation.
2. Identifying, assessing and managing the risks that are relevant to the population is vital to the effective implementation of population protection tasks.
3. The process of protecting the population is the same between different countries, but the content may differ, as the administrative systems of individual states, such as the organization of forces that can be included in the protection of the population, and the structures of their operation, have different legal frameworks and capabilities.
4. The protection of the population is primarily a task, organization and action system for the protection of human life and material assets, which, in parallel with the defence, takes place simultaneously with it, but still takes priority over, the damage relief operations.
5. The redefined legal concept of civil protection and the novel approach to the protection of the population largely overlap, which also confirms that protection of the population is an integral part of civil protection.
6. The hazard classification system currently in use is not consistent.
7. From the point of view of the protection of the population, security can be described as the status, position and its reflection in the minds of the inhabitants of a certain area of Hungary (sense of security), in which one can exclude the threat to life and material assets, or the skills necessary for its elimination are given.
8. Due to climate change, certain types of hazards (e.g. invasive animal species) are spreading from south to north, thus the analysis of the hazards in the Mediterranean region is necessary.

9. Based on the proposed hazard catalogue, the identification of hazards can be carried out by means of a compliance assessment in the given area.

7. NEW RESEARCH RESULTS

Based on the hypotheses and objectives of the dissertation, **the author proposed the acceptance of following new scientific results:**

- E/1 In order to place the protection of the population in the risk management system, he determined the basic factors necessary for the effective implementation of the population protection tasks and elaborated the flow chart of the introduction of the population protection tasks, on the basis of which he demonstrated that the protection of the population, depending on the state administrative system and response capabilities, is primarily for the protection of human life and material goods. - a task, organization, and action system that runs in parallel with the damage control activity.
- E/2 He carried out wide-ranging international and domestic data collection, analysis and evaluation work in the area of hazard mapping, based on which he proved that the current hazard classification system is difficult to apply. He proposed the introduction of a new hazard taxonomy catalogue.
- E/3 A representative questionnaire survey was the first to show that the population preparation activities for disaster management are effective and efficient.
- E/4 He proposed to further develop the risk assessment matrix of the municipal disaster risk assessment procedure by applying a method of relative numbering system that allows the detection of discrepancies within risk categories. He also identified the further development potential of using the relative numbering method.

8. RECOMMENDING THE DISSERTATION

The dissertation presents the task system of the protection of the population in a comprehensive way, the natural and civilization-based hazards that negatively affect the life and welfare of the population, the development of risk assessments, as well as risk assessments of domestic populations and better-known Western procedures. In addition, the author recommends this work:

- for those in charge of disaster management, defence administration and local government who are directly involved in the management of public security tasks;
- educational materials for regional and local level security managers, mayors and notaries and public security desk officers;
- study for doctoral students, university and college students looking for disaster risk assessment,
- to be used for other basic research.

9. PRACTICAL USABILITY OF THE RESEARCH FINDINGS

The author considers the dissertation usable in practice:

- as a starting point for the further development of the risk assessment on the basis of the classification of the municipal catastrophe;
- National Public Service University in Disaster Management in bachelor's degree in Defence Administration and Population Protection
- training materials for the Centre for Disaster Management,
- the teaching activities of other educational institutions dealing with the subject

10. LIST OF PUBLICATIONS BY THE AUTHOR ON THE TOPIC

1. Nagy, Sándor: CURRENT CHALLENGES OF RISK ASSESSMENT IN LIGHT OF POPULATION PROTECTION, DEFENCE REVIEW: THE CENTRAL JOURNAL OF THE HUNGARIAN DEFENCE FORCES 146: 2018/1 pp. 184-195., 12 p. (2018)
2. Nagy, Sándor: Classification of hazards relevant from the point of view of the protection of the population, their potential risks for aviation, AVIATION SCIENCE PUBLICATIONS (from 1997) XXIX: 3 pp. 127-140., 14 p. (2017)
3. Nagy, Sándor: The relation between natural and civilizational hazards and protection of the population, the role of drones in effective event management AVIATION SCIENCE PUBLICATIONS (from 1997) XXIX: 3. pp. 85-94., 10 p. (2017)
4. Nagy, Sándor ; Kátai-Urbán, Lajos: Population protection tasks in the event of environment pollution, ECOTERRA: JOURNAL OF ENVIRONMENTAL RESEARCH AND PROTECTION 11: 4 pp. 77-83., 7 p. (2014)
5. Nagy, Sándor: The Quality of the Defence Administration, ACADEMIC AND APPLIED RESEARCH IN PUBLIC MANAGEMENT SCIENCE 13: 2 pp. 277-282., 6 p. (2014)
6. Nagy, Sándor: The relation between state of emergency prognoses and the local level defence administration MILITARY SCIENCE: JOURNAL OF THE HUNGARIAN MILITARY SCIENCE ASSOCIATION 24: 3-4 pp. 124-132., 9 p. (2014)
7. Nagy, Sándor ; Hornyacsek, Júlia: Interconnections of environmental protection risks and protection of the population BOLYAI REVIEW XXIII.: 2014/1 pp. 109-131., 23 p. (2014)
8. Nagy, Sándor: The effect of the restructuring of public administration in Hungary in 2013 on the regional and local defence administration tasks SOCIETY AND HOME DEFENCE XVII: 3-4 pp. 453-462., 10 p. (2013)
9. Nagy, Sándor: Actual questions of residential defence in the period of an accident at a hazardous plant In: Dobor, József (editor) Collection of lectures: Safety of Hazardous Industrial Plants 2013 Budapest, Hungary National University of Public Service, (2013) pp. 123-129., p. 7
10. Nagy, Sándor: Comparison of the domestic population protection risk assessment with western risk analysis procedures BOLYAI REVIEW XXII: 1 pp. 159-176., 18 p. (2013)
11. Nagy, Sándor: Current issues of large-scale events (2012) "For our own safety" Educational Advisory Academic Association

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12. Nagy, Sándor: Preparing a complex outer zoning concept for the town of Szentes, In: Karancsi, Z; Oláh, F (editors.) A complex outer zoning concept for the town of Szentes, Szeged, Hungary *: SZTE JGYPK ATTI Department of Geography and Ecotourism, (2012) pp. 113-119., 7 p.
13. Nagy, Sándor: The natural hazards of the southern region of the Great Plain, in KAPU 25: 6-7 pp. 139-141., 3 p. (2012)
14. Nagy, Sándor: Lessons learnt from the inland waters flood control in inner and outer areas of the Szentes micro region in, MILITARY ENGINEERING BULLETIN XXI: Special Issue pp. 760-776., 17 p. (2011)

11. THE DOCTORAND'S PROFESSIONAL-ACADEMIC BIOGRAPHY

PERSONAL DETAILS

Name, rank, title: **Sándor Nagy, Fire Service Lieutenant-Colonel, FS Counsellor**

Nationality: Hungarian

POB/DOB: Szentes, 27/07/1975

Positions:

16 February 2016 - : MOI NDMGD National Civil Protection General Inspectorate., Planning and Defence Administration Division, Head of Department for Defence Administration

2015-2016: Ministry of Interior, National Disaster Management General Directorate, Assistant Inspector General for Civil Protection.

2012-2014: Csongrád County Disaster Management Directorate, Szentes DM Field Office, Civil Protection Inspector.

2009-2012: Csongrád County Disaster Management Directorate, Szentes DM Field Office, Head of Field Office.

2007-2008: HDF 37th Ferenc Rákóczi II Engineer Battalion, Command Elements, Battalion Staff, (S-3), acting head of operational section (Asst. COS).

2006-2007: HDF 37th Ferenc Rákóczi II Engineer Battalion, Command Elements, Battalion Staff, (S-3), operations officer, (assistant head of section.).

2004-2006: HDF 37th Ferenc Rákóczi II Engineer Brigade, Command Elements, Brigade Staff (G-3), Brigade staff HQ (G-3), section controlling current activities, operations officer.

2002-2004: HDF 62nd Miklós Bercsényi Mechanized Infantry Brigade, command elements, brigade staff, reconnaissance directorate (G-2), recce officer.

1997-2000: Republic of Hungary Military Intelligence Office Security Division.

Other public service/social activities:

01.01.2012-31.03 2012.: Local Defence Committee of Csongrád, Vice-Chairman.

2009-2012: Member of local Defence Committee, Szentes Home Defence District, Head of the Disaster Management Operational Workgroup of the local Defence Committee.

2013.01.22-: Member of the Hungarian Civil Protection Academic Association.

2013.03.03-: Member, Hungarian Military Science Association, Disaster Management and Civil Protection Section (Vice Chairman of Section 2014-2017),

2015-: Expert for the Hungarian Military Science Association

Formal Education, studies:

2012-: National University of Public Service, Faculty of Military Science, Military Engineering Doctoral School, doctorand (Preliminary procedure for earning a higher degree 2018.)

2010 - 2012: National University of Public Service, Disaster Management Institute, MsC Defence Administration specialty, *Diploma in Senior Defence Administration Management.*

2000-2002: Miklós Zrínyi University of National Defence, Faculty of Military Science, Operational-Tactical Department, *Diploma in military command*

1993-1997: János Bólyai Technical Military Academy, Dept. of Radio-electronic Detection, radio detection specialty, army officer, *electric engineer*.

Training Courses:

2017: Comprehensive Radiological Protection training course (Budapest)

2016: Community Mechanism Introduction Course (Split)

2015: Law Enforcement Leadership Development Course (Budapest)

2010: Law Enforcement Board of Examiners, Public Administration and Integrated Law Enforcement and Disaster Management Administration examination (Budapest)

2005: ECDL, (European Computer Driving Licence, Szentes)

1998: RoH NSO, advanced specialized course (Budapest)

Foreign languages:

Russian - Intermediate Level Type C (enlarged with military texts)

English - Intermediate Level Type C (enlarged with military texts)

STANAG 2.2.2.2

Driving licence for category B and C motor vehicles

Awards and Medals:

2019. Service Sign, Minister of Interior

2018: Fire Service Counsellor title, Minister of Interior

2011: For Standing Outstandingly Firm – Red Mud Disaster Sign of Merit, Minister of Interior

2006: Flood-Control Service Sign, Minister of Defence

2006: Flood-Control Medal of Merit, Silver Grade, Minister of Environmental Protection and Water Management

2003: Officer's Service Sign, 3rd Grade

Promotion in rank:

2014: Lieutenant-Colonel

2009: Major

2002: Captain

1998: First Lieutenant

1997: Lieutenant

1996: Warrant Officer

Budapest 13 May 2019

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