

NATIONAL UNIVERSITY OF PUBLIC SERVICE  
DOCTORAL COUNCIL

National University  
of Public Service  
Doktoral Council

LÁSZLÓ TEKNŐS

*- Novel Interpretation of the Protection of the Population and Property in  
Emergency Caused by Climate Change -*

Author's summary of doctoral (PhD) dissertation and official reviews

Budapest  
2015

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Consultant:

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## 1. THE SUBJECT OF RESEARCH

By getting to know the wildlife, humans discovered and developed methods, principles and organisations needed for their own survival. However, they used the benefits provided by these developments for their own destruction. They began a senseless waste of natural resources to build a protection system, but not primarily against the effects of natural forces but rather against the efforts of another folk to conquest and plunder. The new tools were capable for bigger and bigger destruction, which resulted in newly emerging needs for protection. The emergence of the mass army in the 20<sup>th</sup> century and then the production of aeroplanes and various weapons of mass destruction changed the strategic concepts as well. The resulting methods for population protection still in use today need updating to respond to the changes that occurred in the international security culture. As long as offensive weapons are available, the *raison d'être* of population protection measures cannot be questioned. It justifies and provides relevance to researches on the modernisation of population protection.

Economic and social opportunities offered by the industrial revolution proved that human development has given rise to more and more civilisation harms and risks. After the World War II, mankind, equipped with new sources of energy, possessed such economic and technological potential that made him capable of exerting both positive and negative impacts on the Earth.

Since the 1960s, in addition to the economic results of modern industrialised countries, drawbacks have also appeared in the social, economic and natural systems.

Human development significantly pollutes elements of nature, damages wildlife and squanders natural values, which has evolved into a global problem by the end of the 20<sup>th</sup> century. One of the main environmental hazards is air pollution, especially the enrichment of greenhouse gases in the atmosphere, as they greatly contribute to global warming. The findings of meteorological analyses, measures and models all reveal that both the oceans and the continents warmed in the twentieth century (though, since 2002, due to the energy absorption of oceans, warming has been stagnating). The question arises if it is possible that human activities contribute to changes in a natural process (in this case, atmospheric warming) based on the scientific understanding of climate change. If yes, to what extent? In any case, apart from this scientific dilemma, it is a more urgent problem that certain meteorological and hydrological events are becoming more intense and frequent (in Hungary, as well).

Extreme weather anomalies in Hungary have been breaking more and more records. Past peak values of temperatures, rainfalls and wind suggest that there used to be extremities in weather in Hungary, but we have to add that the new records were all set after 2000. This is a rather interesting issue that needs to be approached from the viewpoint of meteorology, hydrology and disaster management. As regards disaster management, the priority is not to explore the relationship between climate change and extreme weather, but rather to identify and predict the values of meteorological parameters and the resulting damages. The trouble is that there are climatic phenomena and weather parameters that influence the population and property. In the 21<sup>st</sup> century, safety is among the most basic needs of both the society and the state, which means that as a result of the negative effects of climate change and the consequences of weather anomalies, the defence sectors have to develop to be more responsive.

From the viewpoint of disaster management, it involves the emergency preparedness of the population, public information (which is not the same as causing panic) and the development of prevention culture. In the fight against weather and climate effects, the goal is to learn self-rescue skills, to readily comply with the code of conduct and to actively involve citizens in the response to meteorological and hydrological events. These tasks are nothing new, yet they will always be relevant and compulsory because of the current changes in social customs.

To sum up, the following are all timely, relevant and interdisciplinary responsibilities in order to guarantee Hungary's safety: challenges, threats and risks experienced in the 21<sup>st</sup> century, which may happen again, especially as a result of climate change; the scientific analysis and evaluation of the protection of the population and property; the study of effective interventions against the consequences of the increasing number of meteorological and hydrological incidents; possibilities for encouraging volunteerism in defence; the vulnerability of critical infrastructure; formation of new procedures and recommendations on the methods of interventions.

## 2. RESEARCH OBJECTIVES

Based on the introduction and the subject of the research, this dissertation sets the following objectives:

1. In accordance with the laws in effect, I analyse the conceptual system, the modern interpretation, the current problems and the challenges of the protection of the population and property. My goal is to systematise the tasks related to the protection of the population and property, to summarise their characteristics as well as to make recommendations on methods to develop self-rescue skills of the citizens.
2. I investigate the effects of climate change in Hungary, especially on the population and property. I analyse how the impacts of climate change and extreme weather anomalies affect firefighting and technical rescue. Several articles and studies claim that the number of meteorological and hydrological incidents has risen in Hungary, but it is not supported with data. My goal is to prove it with statistics and data.
3. I wish to describe the damage areas of extreme weather events, the psychological reactions of the affected population to emergency situations and the potential treatments and solutions in order to ensure protection and rescue. In the history of mankind, epidemics and infectious diseases have always been of particular importance. Their outbreak and spread are not only influenced by commercial factors, but also by the properties of the climate. Therefore, I explore connections between global climate change and infectious diseases, supplemented with the identification of health effects.
4. In the dissertation I present three surveys compiled by myself, whose purpose is to assess the level of citizens' awareness and knowledge of climate change as well as to study their self-rescue skills and readiness to use them, moreover to analyse the health effects.
5. My goal is to evaluate the disaster vulnerability of Hungary, and then to classify the risk factors, since in the course of my research, I encountered numerous methods for the classification of natural and man-made disasters affecting Hungary, which offer an incomplete description of traditional and recent challenges, risks and threats. My goal is to compile a glossary on this research topic that helps to comprehend this complex interdisciplinary area.

6. I analyse the citizens' needs and methods to obtain information. I explore possibilities to guarantee public information in emergencies in line with the communication needs in the 21<sup>st</sup> century.
7. I research new possibilities to increase the quantity and quality of volunteer rescue teams, based on the consequences of meteorological and hydrological events in the past 15 years.

The basic function and scientific guidelines of the professional disaster management body and the provisions of the Doctoral School of Military Engineering, NUPS Faculty of Military Science and Officer Training were considered research criteria when I conducted the following steps: interpreting the protection of the population, analysing databases, conducting source criticism, inserting the relevant figures and tables in the suitable content, studying the adverse effects of climate change and the consequences of extreme weather and exploring the possibilities for citizen preparedness and information in the 21<sup>st</sup> century.

Owing to the length limit of the dissertation, to narrow the scope of my research topic, I do not elaborate on the global components of climate change and I do not explore the relationship between climate change and civilizational risks, challenges and threats.<sup>1</sup>

### 3. RESEARCH HYPOTHESES

Considering the research problem and the research objectives, my hypotheses are the following:

- I *assume* that today's safety challenges suggest that the traditional methods and fields of the protection of the population and property have to be updated, and novel elements have to be included because of the negative effects of climate change on the society and economy. I presume that including the definition of the protection of the population and property in interpretive provisions would benefit disaster management and civil protection.
- I *assume* that the frequency and intensity of meteorological and hydrological events have been growing and that their impact is extensive and complex. I consider that

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<sup>1</sup> Such as migration, armed conflicts, traffic accidents

extreme weather events influence tendencies and activities in firefighting and technical rescue and the types and quantity of special equipment. Therefore, the relevant staff of the professional disaster management body and the professionals of related areas have to participate in courses covering basic meteorology.

- I *presume* that each citizen of Hungary is affected by climate change, so the population must be prepared for the expected meteorological and hydrological consequences, for coping with situations other than the usual phenomena and for the code of conduct in extreme situations. I *assume* that the Emergency Information and Communication System (VITÁR) can be a modern way and possibility of citizen preparedness, as it suits the standards and momentum of 21<sup>st</sup> century information and communication and it is in line with the preparedness guidelines of the professional disaster management body. I assume that an information and awareness publication on the negative effects of climate change and extreme weather need to be published that contributes to the development of citizens' safety culture.
- I *assume* that the educational profile of higher education institutions might increase the standards of the protection against disasters. Therefore, in my opinion, it is necessary to involve higher education students in the protection against disasters in Hungary to protect the population and property, with reference to the Volunteer Disaster Management Service of the National University of Public Service. I presume that rescue teams of higher education institutions might multiply the deployable forces of rescue teams. To guarantee effectiveness, the voluntary rescue teams of higher education institutions primarily have to comply with subunits of professional civil protection bodies.

#### 4. RESEARCH METHODOLOGY

To stay true to the title of the dissertation, several research methods were applied in order to achieve the research objectives and to prove the hypotheses:

I created an individual study and research plan that supports my research goals and my hypotheses as best as possible (development of basic research).

I collected and reviewed relevant Hungarian and significant international professional literature, publications, studies, manuscripts, regulations as well as the findings of recent researches, which were included in the relevant chapters of the dissertation. I applied analysis and comparative analysis to investigate risk factors.

I participated in Hungarian professional forums, study trips and conferences, then I contrasted the experience gained there with my research findings and drew conclusions. In the case of diverging results, I revised or reset my research objectives.

I interviewed several climatologists, meteorologists and healthcare managers with international recognition and led discussions with researchers and professionals to gain broader insight into the topic.

I carried out targeted searches in libraries and museums based on individual consultations and the professional literature collected and reviewed.

Characteristics of damage events and areas related to extreme weather were presented with the help of meteorological case studies, hydrological databases, the uniform online Disaster Data Provider Program (hereinafter: KAP online) of the National Directorate General for Disaster Management, Ministry of Interior (hereinafter: NDGDM MoI) and disaster management annuals (2000-2014).

Meteorological and hydrological events were described quantitatively in line with fire department statistics, with the help of Reports on Fire Incidents and Technical Rescues published on KAP online.

I conducted surveys in three topics, whose analysis and assessment led to results and consequences by using deduction. They were put into practice depending on the possibilities (recommendations) and I apply them in education in courses connected to environmental safety and environmental protection.

## 5. THE OUTLINE OF THE THESIS

My dissertation is divided into three main chapters. In the first chapter I systematised the protection of the population and property. I analysed and evaluated the evolution of the protection of the population and property, which is basically a short description of civil protection in charge of protecting the citizens against the damages of epidemic, floods and fires. I supplemented the traditional methods and areas of the protection of the population and property with further elements required by the challenges of climate change. For the sake of clarity, I depicted them in a figure. To conclude the chapter, I identified the major challenges, threats and risks for safety in Hungary, based on which I classified the main types of disasters in Hungary, along which I presented disaster vulnerability of Hungary in text and a summary table.



In the second chapter I dealt with the scientific understanding of climate change, taking into account recent research findings. In this chapter I analysed the impacts of climate change and extreme weather that might pose a danger for the population and property. I illustrated the impacts of global climate change, e.g. warming and cooling periods of the Earth, in so-called presentation diagrams, while disaster vulnerability in Hungary is illustrated in risk maps, comparative figures of fire interventions and other tables and statistics to aid understanding. The content of the subchapters is enhanced by relevant information, statements and deductions, which make it easier to grasp the complexity, relevance and significance of the research topic. Characteristics of damage events and areas related to extreme weather were presented with the help of meteorological case studies, hydrological databases, the uniform online Disaster Data Provider Program (hereinafter: KAP online) of the National Directorate General for Disaster Management, Ministry of Interior (hereinafter: NDGDM MoI) and disaster management annuals (2000-2014).

In the third chapter, I presented possibilities, principles and methods to increase self-rescue skills of the population. I also detailed the code of conduct for the citizens. In the chapter I conducted three surveys, in which I studied the level of citizens' awareness and knowledge of climate change, the readiness to use self-rescue skills, moreover their knowledge on the health effects of climate change. Taking into account the findings in the previous chapters, I formulated novel and updated possibilities to strengthen the protection of the population and property (volunteer rescue teams of higher education institutions, Emergency Information and Communication System, meteorological basic training, citizen preparedness brochures and recommendations on citizen preparedness).

In each chapter, the research problem is defined in detail, the relevant norms are presented, the proposed methods are explained and finally, the chapters are summarised, partial conclusions are drawn and then summarised conclusions are formulated.

## 6. SUMMARISED CONCLUSIONS

In my doctoral dissertation I provide a novel interpretation to the protection of the population and property and analyse the responsibilities in emergencies caused by climate change. In view of them, I found that security has fundamentally changed by the 21<sup>st</sup> century and its interpretation has become more complex owing to the new challenges, threats and risks.

With the help of data and statistics, I confirmed that the main threat on our safety is wars, which greatly contributed to the evolution and development of the protection of the population and property, still an integral part of civil protection within the system of disaster management.

Furthermore, with a historical overview I proved that, in addition to wars, economic-social-military factors of epidemics, fires and floods were decisive factors in the development of population protection. I explored measures guaranteeing the protection of the population and property that defined the modern system of civil protection and disaster management. I analysed each field and I found that the measures with the values of traditional protection had an influence on how the protection of the population and property evolved into an organised self-rescue reflex at the societal level.

The development and classification of the conceptual system of the protection of the population and property was influenced by a lot of natural and man-made risk factors in the 21<sup>st</sup> century. In view of them, I reinterpreted the system of the protection of the population and property, provided a conceptual framework in line with the review of the legislation in effect and supplement it to meet the defence and social needs of the 21<sup>st</sup> century presented in figure 1 along with interpretive texts. It is my contention that the relevance of the protection of the population cannot be questioned nowadays, which is also demonstrated by devastating effects of the growing number of new challenges and disasters.

I found that new elements have to be added to Buzan's dimensions of security. I identified the further dimensions of security, in which I explored the connections between security and climate change. I proved that climate change is one of the main environmental problems and international security challenges that humanity faces in the 21<sup>st</sup> century. I studied the challenges, risks and threats on safety that might lead to disasters, based on which I identified the main types of disasters in Hungary and systematised them in a table by recommending a modern way of classification. After assessing legislations, disaster management reports and analyses, I determined Hungary's regional distribution of

vulnerability to disasters and analysed it on maps representing vulnerability. I drew attention to the importance of the classification of settlements by disaster management. I found that the risk identification processes laid down in the Implementing Regulation of the 2011 Disaster Management Act is more effective in the classification of the settlements and in determining their vulnerability compared to the previous processes and their results. With its help, disaster vulnerability in Hungary can be assessed reasonably and it can be depicted visually.

I proved with data and my research findings that climate is not stable, it has always changed and it always will. The analysis of weather in the past decade led me to conclude that there have been and there will be changes in temperature, precipitation and wind in Hungary. As regards temperature and precipitation, I evaluated certain years in a summary table (2001-2014) and I found connections between extreme weather and emergencies, disasters. Based on the table I found that temperature in Hungary is rising and the average annual temperature has been increasing since 2005. As I described several meteorological events in my dissertation, I analysed their predictability from the viewpoint of disaster management (to gain time advantage). I found that it is not possible to issue warning for all weather phenomenon, as some of them can be identified only when or after they develop, but by analysing the steps of forecasting, I found that the role of the Hungarian Meteorological Service will continue to grow. Due to the more frequent and intense meteorological events, in order to get familiar with the weather warning and alert systems, the affected staff of the professional disaster management body need to be equipped with a basic knowledge of meteorology.

By analysing statistics on fire interventions, I found that the number of days with exceptionally heavy rainfall increases the number of technical rescues, and the increase in the number of days with higher temperature and heat leads to a higher risk of outdoor fires. By analysing water levels of the Danube in Budapest and Vác, I found that the number of high-water marks is growing and it seems to be no longer true that there are extreme floods on rivers in Hungary every 10-12 years. By analysing certain damages and meteorological case studies, I found that damage areas as a result of weather are usually complex, which means that more phenomena of meteorological origin occur in the same place at the same time. Typically, buildings and utilities are damaged to a lesser or greater extent, the environment is harmed and the utilities may be temporarily unavailable. Experience shows that all weather events, usually storms, affect the population indirectly, for example in the form of damages in buildings, properties (home, vehicles, etc.) and infrastructures.

I found that health effects affect the population in two ways, on the one hand, directly (heatstroke), on the other hand, indirectly, for example through the damages and failures in infrastructures.

Based on indicators used in health care I found that the health state of the population is very poor, moreover people with cardiovascular diseases become more vulnerable to higher temperatures and heatwaves. I analysed the psychological impacts of meteorological damages and I found that the population's dependence on critical infrastructure reduces their psychological resistance. I also found that every meteorological event has psychological impacts, so psychological first aid has to be provided on site.

I came to the conclusion that the population has to be prepared for expected meteorological and hydrological effects, for coping with situations other than the usual phenomena and for the code of conduct in extreme situations. I found that the development of information and communication technology has widened opportunities for public information. The large number of users in Hungary makes it essential to explore possibilities and methods offered by social media in emergency public information. Preparedness can shape the population's attitude and mentality towards protection against disasters. Therefore, I made a recommendation on a modern emergency information and communication system (VITÁR) in line with the standards of the 21<sup>st</sup> century. It is based on two-way, verifiable communication, which can support population preparedness and emergency information.

I assumed that the future of civil protection lies with higher education students, with great unexploited potential. Volunteer higher education students guarantee active involvement of citizens, which contribute to the development of survival and self-rescue skills.

## 7. NEW SCIENTIFIC ACHIEVEMENTS

1. Based on the extensive analysis of the activities of the professional disaster management body and its predecessors, I found that the traditional methods and fields of the protection of the population and property have to be updated, so I developed its novel elements related mainly to climate change. I proposed a 21<sup>st</sup> century definition of the protection of the population and property.
2. By analysing weather parameters I proved that the frequency and intensity of meteorological and hydrological events have been growing. With the help of figures and fire call statistics, I inarguably confirmed that the effects of climate change and extreme weather anomalies influence tendencies and activities in firefighting and technical rescue. To support forecasts of the professional body of disaster management and trainings for firefighting and technical rescue, I made recommendations on launching courses covering meteorology and outlined its programme.
3. Using a survey on disaster events connected to climate change in the 21<sup>st</sup> century, I analysed citizens' knowledge on the general phenomenon of climate change, its health effects and the level of their self-rescue skills in extreme weather events. Based on these, I developed the basic concept of an emergency information and communication system (VITÁR) and made recommendations on its application.
4. Through the example of the Voluntary Disaster Management Service of the National University of Public Service, I proved the necessity and possibility of involving higher education students in the protection against disasters. I developed the basic types of Voluntary Rescue Teams of Higher Education Institutions, which might multiply the deployable forces of rescue teams and I made specific recommendations on the organisation, application and equipment of the teams.

## 8. RECOMMENDATIONS

I recommend the dissertation to:

- defence professionals who actively engage in the fight against the negative effects of climate change and extreme weather day after day
- managers of bodies and organisations who are affected by the effects of climate change and actively participate in the protection against disasters
- researches, analyses, assessments, interpretations and the wide range of specialist literature provide practical help for disaster management professionals performing operational activities on a daily basis
- the National University of Public Service, the Disaster Management Training Centre and other relevant educational institutions to include in their training materials
- the training material of public safety assistants

## 9. PRACTICAL APPLICATION OF RESEARCH FINDINGS

- It supports decision making of managers in this field.
- It might contribute to the change in the decision-makers' perspective.
- It contains information supported by statistics and data for teachers and researchers in this field.
- It might serve as a basis for research on health, safety or psychological effects of climate change.
- Summary tables make it easier to understand how extreme weather events developed in the past 15 years. The description of damages and the tables support forecasts and operations evaluation of the professional body of disaster management

## 10. A DOKTORJELŐLT TÉMÁVAL KAPCSOLATOS PUBLIKÁCIÓS JEGYZÉKE

Szerkesztett könyvben cikk, egyetemi jegyzet

- 1) Kátai-Urbán Lajos, Teknős László: A katasztrófavédelem fenntarthatósági aspektusai In: Knoll Imre, Lakatos Péter (szerk.) Közszolgálat és fenntarthatóság. 161 p. Budapest: Nemzeti Közszolgálati Egyetem, 2014. pp. 141-158. ISBN:978-615-5491-64-1
- 2) Teknős László, Endrődi István: A szélsőséges időjárás hatása a magyarországi közlekedési rendszerekre – kiemelten a közút és vasút alágazatokra In: Horváth Attila, Bányász Péter, Orbók Ákos (szerk.) Fejezetek a létfontosságú közlekedési rendszerelemek védelmének aktuális kérdéseiről. 152 p. Budapest: Nemzeti Közszolgálati Egyetem, 2014. pp. 83-99. ISBN:978-615-5305-30-6

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- 1) Muhoray Árpád, Teknős László: A HUNOR hivatásos nehéz kutató – mentő mentőszervezet alkalmazásának logisztikai feladatai Hadtudomány (online) 25:(E-szám) pp. 14-23. (2015) ISSN 1588-0605
- 2) Kátai-Urbán Lajos, Teknős László: Vegyi fegyver alkalmazása az első világháborúban. Hadtudomány: 24:(1-2) pp. 54-64. (2014) ISSN 1215-4121
- 3) Teknős László, Csepregi Péter, Endrődi István: Felsőoktatási intézmények önkéntes mentőszervezeteinek jelentősége, helye, szerepe a katasztrófavédelem rendszerében Hadtudomány (online) 24:(1) pp. 155-168. (2014) ISSN 1588-0605
- 4) Teknős László: A kitelepítés, kimenekítés általános és speciális feladatai Magyarországon. Bolyai Szemle 23: (3) pp. 140-160. (2014) ISSN: 1416-1443
- 5) Teknős László: A Sandy hurrikán Egyesült Államokat sújtó hatásainak elemzése II. Hadmérnök 8:(2) pp. 283-305. (2013) ISSN 1788-1919
- 6) Teknős László: A Sandy hurrikán Egyesült Államokat sújtó hatásainak elemzése. Hadmérnök 8:(1) pp. 140-153. (2013) ISSN 1788-1919
- 7) Teknős László: A Sandy hurrikán Egyesült Államokat sújtó hatásainak elemzése III. Hadmérnök 8:(4) pp. 166-181. (2013) ISSN 1788-1919
- 8) Teknős László: Napjaink globális környezeti problémáinak elemzése, bemutatása. Műszaki Katonai Közlöny (online) 23: pp. 402-417. (2013) ISSN 1219-4166
- 9) Teknős László: A globális éghajlatváltozás egészségügyi aspektusai - a magyar lakosság sebezhetőségének vizsgálata Bolyai Szemle 22:(1) pp. 281-311. (2013) ISSN: 1416-1443
- 10) Teknős László: A 2010-es évi esőzések vizsgálata katasztrófavédelmi szemszögből műszaki katonai közlöny (online) 22:(1) pp. 208-222. (2012) ISSN 1219-4166
- 11) Teknős László: A globális klímaváltozás és a katasztrófavédelem kapcsolata. HADMÉRŐK 4:(2) pp. 80-94. (2009) ISSN 1788-1919

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- 2) Teknős László: The Psychological Effects of Extreme Weather Conditions - The Importance of Crisis Intervention in Disaster Management. In: NISPAcee (szerk.) Government vs. Governance in Central and Eastern Europe: Konferencia helye, ideje: Budapest, Magyarország, 2014.05.22-2014.05.24. Pozsony: NISPAcee, 2014. pp. 1-8. (ISBN:978-80-89013-72-2)

- 12) Teknős László – Schweickhardt Gotthilf: The Role of the Voluntary Disaster Management Service, National University of Public Service in Education BOLYAI SZEMLE 2012:(2) pp. 106-114. (2015) ISSN: 1416-1443

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- 1) Teknős László: Kockázatelemzés a polgári védelmi területen In: Dr Dobor József, (szerk.) Katasztrófavédelem 2014 - Tudományos konferencia. Konferencia helye, ideje: Budapest, Magyarország, 2014.11.26 Budapest: Nemzeti Közszolgálati Egyetem, 2015. pp. 99-106. (2014) ISBN:978-615-5491-97-9
- 2) Teknős László et al.; Horváth Hermina (szerk.) Konferencia kiadvány: "Katasztrófavédelmi Díj" Tudományos Konferencia 2013. c. tudományos rendezvényen elhangzott előadásokhoz Konferencia helye, ideje: Budapest, Magyarország, 2013.10.29 Budapest: Nemzeti Közszolgálati Egyetem, 2013. 150 p. ISBN:978-615-5305-18-4

#### 11. A DOKTORJELÖLT SZAKMAI-TUDOMÁNYOS ÉLETRAJZA

##### Tanulmányok

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| 1. | 2012. szeptember 1. - 2015. augusztus NKE HHK Katonai Műszaki Doktori Iskola, <u>PhD képzés</u>  |
| 2. | 2005. - 2010. Július Zrínyi Miklós Nemzetvédelmi Egyetem, <u>Okleveles Védelmi Igazgatási Manager – katasztrófavédelmi szakirány</u>         |
| 3. | 2004. - 2005. Erdey-Grúz Tibor Vegyipari és Környezetvédelmi Szakközépiskola, <u>Környezetvédelmi és vízminőségi laboratóriumi technikus</u> |

##### Egyéb ismeretek

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- |    |  |
|----|--|
| 1. | 2012. május 30. Budapest Főváros Kormányhivatal<br><u>KÖZIGAZGATÁSI ALAPVIZSGA</u> |
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##### Nyelvtudás

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|----|---|
| 1. | 2010. NÉMET középfok - ARMA katonai szaknyelv |
| 2. | 2015. ANGOL alapfok                           |



## Szakmai tapasztalat

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| 1. | 2011. augusztus 1.- 2013. június 30. Budapest Főváros VII. kerület Erzsébetváros Önkormányzat köztisztviselő  |
| 2. | 2013. július 1.- BM Országos Katasztrófavédelmi Főigazgatóság állományában, mint közalkalmazott; NKE Katasztrófavédelmi Intézet egyetemi tanársegéd |

## Tudományos díjak és elismerések

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|----|---|
| 1. | 2008. ZMNE Intézményi TDK – I. helyezés   |
| 2. | 2009. Országos OTDK – IV. helyezés  |
| 3. | 2009. Bolyai Hadmérnöki Díj Bronz fokozat – TDK különdíj  |
| 4. | 2013. Katasztrófavédelmi Díj Egyéni kategóriájának polgári védelmi szekciójában I. helyezés   |
| 5. | 2014. BM OKF Katasztrófavédelmi Tudományos Tanács által kiírt országos pályázatán III. helyezés   |
| 6. | 2014. Varga Ferenc t. dandártábornok úr, Fővárosi Katasztrófavédelmi Igazgatóság igazgatója elismerő oklevele a Katasztrófavédelem területén végzett kimagasló munkáért |
| 7. | 2014. BM OKF Katasztrófavédelmi Tudományos Tanács által kiírt országos pályázatán I. helyezés   |
| 8. | 2014. Belügyi Tudományos Tanács és az Országos Vízügyi Főigazgatóság közös pályázatán különdíj  |

Budapest, 2015 év július hó 13 nap

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Teknős László