DOI azonosító: 10.17625/NKE.2016.16

AUTHOR'S INFORMATION ON THE DOCTORAL (PhD) THESIS

NATIONAL
UNIVERSITY OF CIVIL SERVICE
Council of Doctors

ZOLTÁN BÁRDOS engineer, fireman LTC

Author's information on the doctoral (PhD) thesis titled

Modernization of local governmental protection against flood and excess waters

Budapest
31st May, 2016

DOI azonosító: 10.17625/NKE.2016.16

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Modernization of local governmental protection against flood and excess waters

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DRAFTING OF THE SCIENTIFIC PROBLEM

Due to the extreme weather conditions, storms, rains, sudden snow breaks of the past decade more and more often developed flood waves, excess waters and flash floods with high water level peaks and descending in a relatively short period of time, endangering the safety of life and material goods of the populated region. Almost 21 250 km2 area of the 93 thousand km2 of the whole country is endangered by river floods; 97 % of this territory is made flood-free and 2,5 million people live here in about 700 settlements. In addition, excess waters and local water damages may occur in any settlement of our country, at any period of the year. This topic is actual, so controlled protection against flood and excess waters, as well as efficient implementation of local water damage prevention and exploration of the possibilities of promotion are the key tasks in the field of responsibility of the local governments.

In order to avoid water damages the preventive works performed by the local governments - previously showing severe deficiencies - is of great importance. The local governments handled the fulfilment of their tasks related to water management and draining of the precipitation as a peripheral function. It was partly the result of the fact that after termination of the system of councils the transfer of the properties has been slowly performed and the ownership relations were settled hardly. On the other hand it has not been clear from the local government act that the mandatory tasks of water management and water damage prevention must be performed by the local governments with the local public waters, water flows and water facilities.

According to the present legal regulations excess water management belongs to the sphere of responsibility of the local governments. Despite this fact the leaders of the local governments responsible for local protection did not pay sufficient attention to the maintenance of the water drainage systems; preparation and training of the organizations founded on the basis of the obligation of civil protection was limited due to the often experienced deficiencies.

Lack of the water damage prevention plans of the settlements, disrepair of the excess water drainage systems and negligence of preparation for protection tasks **jointly resulted** in the necessity of prompt population protection tasks in the framework of extraordinary protection after heavy rains.

By processing this topic I define for the settlements proposals - by researching new solutions - for elimination of the deficiencies and difficulties of protection against floods and excess waters of the local governments, in order to protect life and material goods and to save the people, as well as to up-to-date implementation of the water damage prevention tasks.

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RESEARCH TARGETS

1. Based on the valid legal rules *I analyze* the international and the domestic regulation background of the protection against flood and excess waters, of internal surface water drainage and water management, water damage prevention, and the possibilities of protection based on the flood risks. My aim is to systemize and summarize the tasks related to flood and excess water protection of the local governments and to give proposals for the modernization and improvement of the efficiency of the protection tasks fulfilled by the local governments.

2. The risks of the areas subject to water damages must be reduced; so I clear up the problems of implementation of the water damage preventions tasks for this purpose. I examine the practice of planning and maintenance of the excess surface water drainage systems; *I define a proposal* for complex planning and implementation of the water management tasks of the settlements, for the reduction flash flood peaks, for the elaboration of water damage prevention plans, and the possibilities of their development and checking.

3. *I wish to present* practical flood and excess water protection activity of the local governments in the past decades and through its evaluation *I define a proposal* for efficient preventive preparations for the protection of the settlements. Based on the experience in elimination of the damages *I make proposals* for new possibilities and methods, including successful fulfilment of the protection tasks by the involvement of voluntary rescue organizations.

4. *I research* the structure and availability of the logistic system needed for protection, including the possibilities of using the elements of the renewed disaster management logistic system in the protection of the settlements. I examine the availability of the local material and technical facilities, I give an idea of the optimum development of the initial protection stocks and means - with due regard to the aspects of economy - and I give a proposal for the acquisition of the most needed technical means and facilities promoting protection against flood.

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RESEARCH HYPOTHESES

1. *I suppose* that in order to reduce flood danger our country meets the regulations of the European Union about assessment and managements of flood risk, with due regard to the regulation methods applied in the member countries, so that the expectations coming from country-specific flood risks are also met. *I suppose* that the risk management plans developed in our country ensure management of the risks due to excess water in a complex way, thus they reduce the danger of flooding and increase, at the same time, security of the people living in territories endangered by floods.

2. *I suppose* that the local governments are not completely prepared for the fulfilment of their inland water prevention tasks, because it was not their responsibility before issuance of the water management and local governmental regulations. The settlements do not have prepared water professionals and appropriate financial resources and lacking these unprofessionally operated shower reservoirs and surface water drainage systems - without proper technical solutions - have been built in many cases. Due to the lack of financial resources the necessary maintenance works were missed and as a result the proper functions could not be fulfilled. *I suppose* that the inland surface water draining plans were not prepared in a complex way in many settlements and also the water damage prevention plans for protection were also missing. Lack of the complex planning and of the water damage prevention plans floods and water damages were regular, endangering the safety of the population and their material goods.

3. Based on the floods and excess water damages of the previous decades *I suppose*, that the important part of the damages occurred on water flows not in state ownership and management. Starting from the above *I suppose* that fragmented management, operation and maintenance conditions caused the most severe difficulty in the development of water damages. Maintenance and development were mainly omitted in case of these water flows and as a result extraordinary protection for saving life of the people and of the material goods was needed most frequently, here. *I suppose* that the development of uniform maintenance and operating conditions will improve the condition of the water flows and objects, as well as the draining capacity.

4. *I prove by practical examples* that during the local governmental protections in the past decades the personal and objective conditions of protections were not appropriately organized in many cases. *Many times* it was necessary to use forces and facilities centrally ensured by the national organizations, due to the lack of personal and logistic capacities of protection. *In my opinion* the anti-flood and excess water protection

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container developed in the logistic system of the renewed disaster protection serves well the financial and technical support of the water damage prevention tasks of the settlements; this can be placed to the site of protection in the first step of stepwise delivery. Development of starting logistic stocks is needed in the settlements for the purpose of beginning local governmental protection in time.

RESEARCH METHODS

For the purpose of reaching the research targets I have applied the general research methods, - *analysis, deduction and synthesis.* I have examined and evaluated the legal rules referring to flood and excess water protection, in course of which *I found the following relations.*

By studying the relevant professional literature *I compared* the domestic and the international water damage prevention practices. I have analyzed the experience of the local governmental flood and excess water protection of Hungary, by means of using the available professional literature and the own practical experience acquired during the flood protections.

I have collected and studied the domestic and the valid international professional literature, the sources on the internet, the publications, studies, manuscripts and legal rules and I included in my relevant sections the experience gained.

I participated in professional water conferences, systemized and evaluated the results, drew the consequences and modified my results accordingly. I have studied the scientific papers issued in the field of flood and excess water protection. *I have analyzed and processed* the results of the professional and administrative investigations examining flood and excess water protection of the local governments and drew the *conclusions* of them.

Based on the professional experience collected during my personal participation in flood protection *I drew conclusions* from the flood and excess water protection performed by the settlements.

I have personally consulted the well-known experts of Water Directorates concerned with protection, the territorial and local managers of protection as well as the participants.

BRIEF DESCRIPTION OF THE PERFORMED EXAMINATION PER SECTIONS

I. Assessment of the flood and excess water risk of Hungary, protection strategy of the European Union and of some European countries

Due to the geographical situation and basin-like nature of Hungary grave flood and excess waters as well as local water damages developed in our country in the past centuries, not least due to the very extreme hydrologic events of the past decades. These disasters make it clear

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that important tasks are facing us in water damage prevention. During centuries protective embankments were built along our most important water flows. Channels and reservoirs were made for draining of the excess waters in the endangered areas. The established defence works are important elements of successful protection, but in case of a flood caused by an extreme cyclone protection on the embankments is necessary.

Answers to these problems have to be found and I have stated during my research that the European Union considers preparation for protection against floods and excess waters as one of the main aspects by approval of the Water Framework Guidelines. I have investigated the position of some flood-risky European countries by an international review. Each country regulated flood protection and almost everywhere new strategy has been defined on the basis of the experience drawn from the damages of the centuries. The key point is: "place for the rivers" retaining and relieving areas must be ensured and not only must the dams be raised.

Our country has also elaborated the Water-collection Plan, its supervision has been made and the flood risk management plans were drawn up. With the coordination of the National Water Directorate General preliminary risk assessment, flood danger and risk maps as well as measures for managing and reducing flood risks were elaborated.

By completion of the plans all the data and information are available, providing for saving life and material goods of the inhabitants and keeping the risks endangering the economic values at an acceptable level. This required professional implementation of the protection functions, and availability of the necessary forces and means.

For the purpose of protection of the people living in the settlements classification into disaster classes - based on the factors endangering the settlements were performed as per the new disaster protection act and its Implementing regulation. Based on the identified risks, danger prevention plans were made, which included measures for reducing and managing the effect endangering the population and logistic sources were allocated. As a result the settlements can prepare for the measures needed for more efficient flood- and excess water risk management.

II. Examination of the local governmental water management and water damage prevention tasks from 1990 to 2011

The legal rules regulating the development of the local governmental system were not clearly defined in several cases. It resulted in the fact that determination of the obligatory tasks of the local governments and takeover of the properties needed for fulfilment of the task was performed in a heterogeneous way. Consequently the established local governments of the settlements interpreted the water damage prevention tasks in many ways. In many cases,

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planning of the excess surface water drainage did not match the local construction regulations; maintenance of the water drainage system was considered less important and these kinds of costs were almost not planned in the budget. Due to these serial failures the state had to provide assistance in case of the floods and local water damages belonging to the sphere of responsibility of the local government, in order to safe human life and material goods.

I have examined the situation of the water damage prevention plans to be prepared for protection of the settlements and I could state that almost 50 % of the settlements did not have these plans. For the purpose of improving this rate I describe - the "Methodological guidelines for preparing water damage prevention plans of settlements" updated with the participation of the experts of the Hungarian Chamber of Engineers, Water management and Water construction Division - and using this guideline I defined a proposal for the preparation of water damage prevention plans of the settlements.

By using the experience of an implemented basic and professional training I have analyzed preparation of the founded, mandatory civil protection organization; this could serve as a good example for the fulfilment of civil protection trainings and practices as prescribed by the legal rules. Further I analyze the protection actions performed by the settlements during the flood and excess waters in 2010 and I state that these actions were not capable of independently protecting their own settlements. Participation, organization and management role of the disaster protection directorate and directorate of water affairs was needed in each case.

At the end of the section I show some good experience for the implementation of such a complex water draining plan of a settlement, where after the water damage cases the settlement performed complex planning and construction of the excess surface and peripheral water drainage system. This responsible thinking and foresight, this important step taken for the protection of the population of the settlement is recommended for the local governments, as a good example.

III. Based on the analysis of the protection tasks presentation of a proposal for improving local governmental water damage prevention

By the changes in the legal rules in the past years I examine the system of tasks of protection against flood and excess waters I concluded that organizational and management deficiencies emerged during protection against flood in 2010 in Borsod region, which deficiencies raised the need for transformation of the protection tasks belonging to the sphere of activity of the local governments. *By unprecedented state role and grouping of the forces and facilities the homes of the people living there, could be protected* at the time of the flood. *After the protection the government changed its policy of preparations and implementation of the*

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protection. The legal rules needed for protection of the population were put on new bases; in order to increase efficiency of the water-related tasks decision was taken on the establishment of an organisation of water affairs.

The organisation of water affairs controlling anti-flood and excess water protection in professional respect was put under the management of the minister of internal affairs from 1st January, 2012. Since January 2014 the authority of water affairs separated from the authority of environmental protection and nature conservation and fulfilled its tasks independently, and then, since the middle of September, 2014 this function is realized in the framework of the National Disaster Protection Directorate General of the Home Ministry and the disaster protection directorates of the counties.

The ownership, property management and operation of the waters, water flows and water establishments *was heterogeneous in our country, therefore changes were decided* also in this field. Property management, operation, development and maintenance of the waters and water establishments of state ownership were given to the directorates of water affairs. Further I have analyzed renewal of the protection, management and local governmental tasks of protection against flood and excess waters, the legal and organizational frameworks of protection against flood and internal waters in normal periods and at the time of special legal system. I have confirmed, based on the experience of the national technical management and the anti-flood protection of county Fejér at the time of the Danube record flood in 2013 that management and implementation of protection have worked efficiently in the framework of the renewed legal rules. Strong state support appeared for elimination of the deficiencies of local governmental protection tasks, and it will be similarly done in the future, too. I have stated that technical managers of water affairs are needed for providing professionalism and for supporting the protection tasks of the disaster protection officers and Mayors.

In the example of the protection tasks of Danube flood in 2013 I have stressed that *the required personal and logistic capacities are not available at* the settlement level. It is necessary to involve the territorial, regional and settlement rescue groups in the protection tasks of the local government to eliminate this. In the closing part of the section I have examined that lack of the initial stocks of the settlements caused severe problem in starting of the local governmental protection in time, in case of the flood in Borsod in 2010 and of the Danube in 2013. *I drafted a proposal for the development and composition of the starting stocks* to eliminate this.

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SUMMARIZED CONCLUSIONS

Due to the specific geographic and hydrographical features of Hungary there is a continuous struggle against the damages of waters. I have shown in my thesis that *legal regulations,* organization and form of this protection has *continuously aligned to the natural challenges* in course of our history.

I have outlined in the first section, that during the centuries protective embankments were built along our most important water flows and they were continuously changed according to the water regime of the rivers. I called attention to the fact that the defence works are the fundamental conditions of successful protection, but their inspection and reinforcement are also needed. I have examined in the international review what is drawn up in the Water Framework Guidelines of the European Union and analyzed elaboration of the Water Collection Economy Plans and the complex procedure of Flood Risk Planning in Hungary.

I have analyzed and examined in the second section *the degree of regulation of the local governmental tasks of the settlements* and I pointed out that after the regime change *the sphere of mandatory local public services* was interpreted differently. Rain water draining and water management were not included in the mandatory tasks and as a result no water damage prevention plans were elaborated in many places, therefore I have drafted a proposal for making water damage prevention plans of the settlements.

I have shown preparation of the mandatory civil protection organisation founded for protection against floods and excess waters endangering the settlements, as well as *the implementation of the local governmental protection* in Fejér county at the time of the flood and excess waters of 2010. I have emphasized that the local governments *were not capable of protecting their own settlements independently.*

I have shown a good example of water drainage planning of a settlement, where complex planning of the inner surface and peripheral water drainage system was performed.

I have stated in the third section that based on the organizational and management deficiencies experienced during flood protection of North-Hungary in 2010 the Government *decided* on changing of the developed practice of preparations and protection. *Legal rules needed for granting protection of the population were put on new bases.*

I have stated that involvement of the water management and water authority tasks in a uniform management system resulted in better efficiency of preparations for protection against flood and excess waters, as well as that of the protection.

The system of protection management has been renewed and it has been working on the basis of government offices since 2012. I have confirmed, based on the experience of the

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national technical management and the anti-flood protection of county Fejér at the time of the Danube record flood in 2013 that management and implementation of protection have worked efficiently in the framework of the renewed legal rules. Strong state support appeared for elimination of the deficiencies of local governmental protection tasks, and it must be accounted for also in the future.

I have pointed out that in case of the Borsod flood in 2010 and the Danube flood in 2013 the required personal and logistic capacities were not available at the settlement level. I have proved that lack of the initial stocks of the settlements causes severe problem in starting of the local governmental protection in time. I drafted a proposal for the development and composition of the starting stocks to eliminate this.

NEW SCIENTIFIC ACHIEVEMENTS

1. Following analysis and critical comparison of the regulations of flood risk assessment and management of the European Union and of the legal rules controlling domestic implementation of the flood risk management plans *I have stated* that complex solutions, built on each other, must be applied in course of risk management in our country. *I have confirmed* that the risk management plans made on the basis of the regulations envisage flood risk management targets and measures for structural and non-structural measures and for the reduction of flood probability, based on the assessment of the risks and involving every aspect of them.

2. By analyzing the examination results of the water damage events of the settlements *I have proved*, that the local governments - lacking legal obligations - were not prepared for complete fulfilment of their water damage prevention tasks in professional and material aspects. Unprofessionally operated shower reservoirs, and the non-appropriately maintained inland, surface water drainage systems could not properly fulfil their function in many cases. Most of the local governments do not have water damage prevention plans, causing severe problems at the time of protection. I *have given a concrete proposal* for the solution of the water management difficulties of hilly settlements in the framework of a complex water management program, as well as for the elaboration of the water damage prevention plans of the settlement, using a sample plan.

3. Based on my research of flood and excess water protection performed in the past decade *I have stated* that the most severe consequences of water damages were resulted by separated

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management, operational and maintenance conditions of the water flows. Further I have stated that missed maintenance and lacked development in case of non-state managed water flows made protection of life and material goods of the population necessary. *I have proved* in this relation that modification of the water management act in 2014 -involving state-owned waters and water establishments in the management and maintenance of the water directorates, thus granting management of the state water flows in a uniform system - served strengthening of the state responsibility, efficient and organized preparation for water damage prevention.

4. Based on the complex analysis of the flood protection activity of the local governments and on my practical experience *I have stated* that no personal and objective conditions of the protection were available at the time of the Borsod flood in 2010 and the record Danube flood in 2013 and the local governmental protection activity must not be without state support for a long time. *I have proved* that using the basic flood and excess water protection container in the renewed disaster protection logistic system, to be delivered to the damage site in the first step provides for ensuring the means and facilities needed for starting of the protection; *I made a proposal* for the development and composition of the starting flood protection logistic stocks needed for the settlements in order to begin local governmental water damage prevention tasks in time.

RECOMMENDATIONS OF THE THESIS

The statements of my thesis and the results of my research work are mainly recommended for use in education and training as follows.

1. For protection experts of flood and excess waters who directly participate in the management of the water damage prevention tasks.
2. For the Mayors of the settlements, where water damage danger was considered as a risk factor when making classification of the settlement as per the disaster protection.
3. To include in the training material of subjects related to protection management and population protection of the disaster protection faculty of the University of Civil Service.
4. To include in the training materials of the Disaster Protection Training Centre, to the training activities of the other educational institutions.
5. To include in the professional training materials of the Mayors, notaries and public safety officers.

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PRACTICAL APPLICABILITY OF THE RESEARCH ACHIEVEMENTS

I propose using of the statements of my thesis and research work, its conclusions and research achievements as follows:

1. To include in the fulfilment of basic and professional training of the regional and local voluntary and mandatory civil protection organizations.
2. To include in the disaster prevention and protection managements training of the Mayors.
3. In course of preparing water damage prevention plans of the settlements.
4. In course of planning and implementing of the inner and peripheral surface water drainage of the settlements in a complex approach.
5. During development of the logistic starting stocks of the settlements needed for flood and excess water protection.

LIST OF THE PUBLICATIONS OF THE AUTHOR IN THIS TOPIC

PROOF-READ BOOKS, TENDERS, NOTES (ON-LINE, TOO)

1. Zoltán Bárdos Info communication background of the logistic support of disaster protection MTA IX. Department of Economic and Legal Sciences, Logistic Interdepartmental Permanent Committee, Logistics in higher education and PhD training III. (BCE-BMGE-ME-NKE) (2013) pages 139-152. ISBN978-963-08-5898-4

PROOF-READ PROFESSIONAL ARTICLES (ON-LINE, TOO)

In foreign language journals published in Hungary

2. Zoltán Bárdos: survey on the flood–prevention of municipal governments during the Danubian flood of the century AARMS Vol. 13, No. 3 (2014) 425-431.

In relevant journals in Hungarian language

3. Zoltán Bárdos: About the safety of electric power supply, Bolyai Review, Vol.XVIII Number 1. (2009) pages 77-83 ISSN 1416-1443.
4. Zoltán Bárdos: Regulation of the transportation of dangerous materials and experience of inspection of road deliveries in Fejér county, Hadmérnök Vol. V. number 2. (2010) 110-114

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5. Zoltán Bárdos: The role of professional training of flood prevention complex civil protection organizations for regional purposes in local governmental flood and excess water protection, Hadmérnök Vol. V. number 3 (2010), 264-280.
6. Zoltán Bárdos, Dr. Árpád Muhoray: Examination of the development of excess waters and of the possibilities of protection, Hadmérnök Vol. VII. Number 1. (2012), 78-90
7. Zoltán Bárdos, Dr. Árpád Muhoray: Changes in the water damage protection tasks of the settlements in the changed legal environment, Hadmérnök Vol. IX. Number 3. (2014) 48-60.

NON-PROOF-READ PROFESSIONAL ARTICLES

8. Zoltán Bárdos: Experience gained from checking of the water damage prevention plants in Fejér county, Disaster Protection, Vol. L. Number 9. (2008), 21-22.
9. Zoltán Bárdos: Considered of medium risk, Disaster Protection, Vol. L. Number 10. (2008) 15-16.
10. Zoltán Bárdos: New BEIT (Nuclear Accident Prevention Action Plan) is being prepared in Fejér country, Disaster Protection, Vol. L. Number 12. (2008) 11-12.
11. Zoltán Bárdos, Péter Czomba, Dr. Árpád Takács: Urban discharge - sludge fight, Protection Vol. XVIII. Number 3. (2011) 49-52.
12. Zoltán Bárdos: The past ten years of disaster protection in Fejér county, Disaster Protection, Vol. LII, Number 1-2 (2010) page 29.
13. Zoltán Bárdos Self-rescue skill development exercises in Fejér county Disaster Protection, Vol. LII. Number 5. (2010), pages 21-22.
14. Zoltán Bárdos: Extraordinary flood protection in Fejér county Disaster Protection, Vol. LII. Number 6. (2010), pages 16-17.

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PUBLISHED IN DOMESTIC PROFESSIONAL CONFERENCE MATERIALS

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SCIENTIFIC BIOGRAPHY OF THE PHD CANDIDATE

Name: Zoltán Bárdos

Place and time of birth: Miskolc, 15th March, 1967.

PROFESSIONAL EXPERIENCE

I gained diverse knowledge in the field of disaster protection during almost 11 years spent by the Disaster Protection Directorate of Fejér County. As the head of the civil risk situation management department I could gain wide-ranging experience in the preparation, intervention and restoration of natural and civilization emergency. I have participated in checking force major damages in real estates, bridges, roads and water drainages of local governmental ownership due to extreme weather conditions for many years. After the Danube flood of 2002 I performed controlling of the damage assessment and restoration works. The inspection of the inner water drainage systems and water damage prevention plans was performed in Fejér county with my coordination in 2007-2008. The Nuclear Accident Prevention Action Plan (BEIT) was elaborated under my management in 2008.

A Protection management exercise was implemented in my organization for practicing Nuclear Accident Prevention tasks in 2009.

I personally controlled the flood and excess water protection activity in Fejér county in 2010 and in June, I supported the work of the Mayors in the local governmental protection by the Borsod flood, and then I participated in the management work of the disaster protection staff of the county.

I participated in the work, 2010 for several weeks, of the controlling staff (UKKK) established for the liquidation of the consequences of the red sludge disaster of 4th October.

There was a loess embankment slump in Kulcs at the Danube bank in January, 2011, where I controlled the management of the situation after the damage event and the restoration works in respect of disaster protection.

Since 2nd May, 2012 I have been engaged in the coordination of the regional and local tasks of the renewing protection management system in Fejér county, I have elaborated the new SZMSZ of the County Protection Committee (MVB), the Charter of the Secretary and of the MVB work groups.

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I have organized training for the MVB work groups several times to have the member of the Local Protection Committees and of the settlement Mayors acquire protection management knowledge several times.
In the past years I have been the external consultant of the students of ZMNE Bólyai János Military Technical Faculty, learning at the Protection Management Specialization in different topics.

My professional carrier:

Having graduated from the high school I got my first officer position by the battalion 8546 of the Hungarian People's Army in Székesfehérvár, where I served from 1988 to 1991 and then I was charged with different positions by the military units of the Hungarian People's Army.
At my request I was relocated from the Hungarian People's Army to the staff of the Disaster Protection Directorate of Fejér Country on 15th August, 2000.
Due to the personal changes at the directorate in 2005 I was appointed as the head of the civil emergency management department.
Since 2009 I was the deputy manager of the directorate and in this period I was responsible for managing the professional work of the directorate.
Since January, 2011 I was appointed as the manager of the directorate; I performed this job until 1st August, 2011.
From August 2011 till 2nd May, 2012 I worked for the National Disaster Protection Directorate General in the field of civil protection and I participated in the elaboration of the preparation of the renewed disaster protection rules.
I was appointed as the Secretary of the Protection Committee of Fejér County by the Minister of Defence.

My studies:

I performed my secondary education in the Industrial Professional School No. 2 in Miskolc, where I passed my final examinations in 1985.
I graduated as a telecommunications engineer at the telecommunications faculty of Zalka Máté Military High School.
I attended the Military communication system organizer specialization of the Management and Organization Faculty of Zrínyi Miklós National Defence University in the period between 1997 and 1999. I graduated as a manager of military technology with honoured university degree in 1999.

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I participated in a 10-month intensive course of German language at the Bólyai János Military Technical High School in 1993-1994 and I got an intermediate language exam of "C" type.
In order to improve my German knowledge I attended a Battalion Commander Course in Bundeswehr in 1997.
I performed Law Enforcement Leadership Training of the Law Enforcement and Crime Prevention Institute by the Home Office.
I participated in the disaster and fire protection organizer officer training in the Disaster Protection Training Centre by the Home Office in 2005-2006.

Language skills: German medium degree, with professional material, type "C" and English, basic degree, type "C".

Budapest, 31st May, 2016

Zoltán Bárdos