Załącznik 3

Summary of Professional Accomplishments

1. Name and surname

Paweł Kępka

2. Obtained diplomas, scientific /artistic degrees – with the specification of their names, places and years of obtaining and the title of the doctoral dissertation.

- Fire Safety Engineer – The Main School of Fire Service in Warsaw, 1998.
- Master - The Main School of Fire Service in Warsaw, 2000.
- Doctorate in Military Sciences in the Specialty of National Security, National Defense University of Warsaw, Strategy and Defense Department, 2007, the title of the doctoral dissertation: "*The model of cooperation between rescue and armed forces in case of biological weapons use in Poland*".

3. Information on so-far employment in scientific / artistic establishments.

01.10.2013 – until now
Head of the Chair of Safety Engineering, the Faculty of Civil Safety Engineering, the Main School of Fire Service

01.10.2010 - 30.09.2013
Head of the Chair of Security Studies, the Faculty of Civil Safety Engineering, the Main School of Fire Service

01.05.2010 - 30.09.2010
Head of the Crisis Management Department, the Faculty of Civil Safety Engineering, the Main School of Fire Service

04.05.2009 - 04.10.2010
Chief Specialist, Planning Division, the Government Center for Security (GCS)

01.09.2008 - 30.04.2010
Deputy Dean of the Faculty of Civil Safety Engineering, the Main School of Fire Service

since 01.10.2007
Assistant Professor, Head of the Crisis Management Department, the Faculty of Civil Safety Engineering, the Main School of Fire Service

2006 – 2007
Senior Lecturer at the Faculty of Civil Safety Engineering

2001-2006
Research Assistant at the Faculty of Civil Safety Engineering

1998-2001
Junior Specialist at the Rector's Office of the Main School of Fire Service

4. Specification of achievements* stemming from Art. 16 item 2 of the Act of 14th March 2003 on Academic Degrees and Titles as well as Degrees and Titles in the Field of Art (Journal of Laws No. 65, item 595 as amended):

a) the title of scientific /artistic accomplishment,

Paweł Kępka, *Security Systems Designing, Belstudio,* Warsaw 2015, ISBN 978-83-7798-232-7.

b) presentation of the scientific /artistic objective of the above mentioned work / works and achieved results together with the illustration of their potential use.

The main goal of the monograph is to discuss assumptions and principles as well as techniques of designing safety systems with the implementation of engineering techniques. The study intends to provide answers to the following questions:

- Is it possible to design the security system on the basis of operation procedures analysis as well as other legal aspects, historical data and other information available for a given service, department or inspection?
- What is the possibility to use information and databases referring to records of events?
- Is it possible to model hazards in order to define optimally forces and resources?
- How can we use risk analysis and assessment in the field of security?
- Is it possible to design the safety system with the implementation of modern technologies?

Contemporary knowledge in the field of security engineering enables to define manners and methods, thanks to which it is possible to design the security system, including the rescue system, whereas, such designing requires both a vast amount of input data, as well as the cooperation of numerous institutions at various levels of the operation of the country. The study discusses issues related to the identification of basic principles, guidelines and techniques which shall be taken into consideration in the process of the security system designing. Basic components include the analysis of legal aspects, analysis of information sources and databases regarding historical events, hazards simulation and modeling, risk analysis as well as the implementation of modern technologies for obtaining, processing, analyzing and visualizing adopted functional and non-functional requirements.

Currently, in order to ensure security of citizens numerous inter-disciplinary activities are needed. Services, departments and inspections are established in order to address risks, and in case of the unfavorable event occurrence to react efficiently in order to minimize

consequences. Thanks to strategies and a vast experience, those institutions improve their rescue potential aiming at the optimization of activities. In Poland, there are many natural and anthropogenic hazards which have an impact on security of citizens. Floods, fires, technical and industrial breakdowns result in losses in people, property, environment and infrastructure, including critical infrastructure. There are more and more such hazards and their detrimental effect is bigger and bigger. The contemporary geopolitical situation of Poland entails the occurrence of an additional hazard, that is, terrorism. Such an amount of various hazards constitutes a considerable challenge for security systems, including rescue systems. Each event with symptoms of a crisis situation exposes security systems to a real test of possibilities. Information on the occurrence of such a type of situation quickly reaches the media, causing concerns of both the citizens as well as rescue services which shall be prepared, shall enjoy specialist equipment and appropriate procedures, even if they have not participated previously in the liquidation of such a type of events. The current civilization progress, cultural development of societies as well as changes in the natural environment may cause the occurrence of new hazards. There are a considerable number of the types of hazards whose source may refer to the natural environment, as for instance droughts, hurricanes or snowstorms. On the other hand, technological development may cause hazards, among which we may list fire, technical, chemical and communication hazards. All those hazards demonstrate one common feature – unintended negative consequences. The above mentioned makes us aware of the need to undertake system activities intended to identify hazards and risks as well as to elaborate appropriate most effective methods of recue and support activities in order to minimize consequences of such events.

Contemporary security systems, including rescue systems, do not focus exclusively on responses to hazards. Activities related to the optimization of forcers and resources are undertaken. A significant milestone in the field of security refers to the Crisis Management Act which defines that “a hazard map (...) is the map presenting the geographical area covered by the range of a hazard with consideration of various scenarios of events”, whereas “a risk map is the map or description presenting potential negative results of the impact of the hazard on people, environment, property and infrastructure”. Such provisions cause that services, departments and inspections shall, within the scope of their competences, prepare documents, which de facto are analytical documents describing hazards, scenarios, consequences and risks. On the other hand, the analysis of the preparation to intervene in case of the occurrence of those scenarios of events may indicate that the implementation of organizational and legal changes will contribute to better, more effective identification, preparation and response to hazards.

Optimal operation of security systems may be obtained with the implementation of engineering methods. The study presents an innovative approach to supporting rescue systems designing for municipalities, poviats and regions allowing for the optimization of the rescue entities distribution, their manning with consideration of human resources, training, technical equipment and operating times, depending on the hazard and the level of risk.

In the first chapter, I have presented legal aspects of security and crisis management, mainly in the form of subsequent examples. Acts and regulations determining tasks and the operation of services, departments and inspections constitute the main element crucial in the designing process. Those documents define the form of the operation, structure of competences as well as operational protection. Legal aspects or rather legal bases constitute the foundation for future solutions. Obviously, we shall take into consideration the fact that results of studies may indicate the need for changes for instance in procedures regarding the access to databases, or the provisions of regulations regarding arrival times as the basic (and sometimes the only) criteria for the location of rescue units.

In the second chapter, I have presented the description of selected databases which are necessary in order to determine: types of hazards counteracted by a given institution, historical data together with the map visualization of consequences, alarming times, arrival times as well as "handling" the event, equipment used, etc. The above mentioned databases provide information which is necessary in the aspect of risk analysis and assessment, as without such information we could deal only with subjective estimations. The majority of rescue or support institutions in Poland have enjoyed such databases even for several dozens of years. Structures of such databases vary; however, in most cases it is possible to obtain required information necessary for the system designing. Nevertheless, an overall (holistic) analysis of data, for instance for a given year or a unit analysis is necessary to examine "outlying" cases. Thanks to data processing it is possible to obtain histograms, examine the frequency of interventions, various distributions, as well as to analyze, generally wrongly negligible, simultaneity of events, etc. For the sake of example, the State Fire Service, year by year has over 400 thousand interventions related to fires or other local hazards. In case of databases analyses for the rescue system designing, substantive assessment and verification of such data with regard to their completeness and quality are significant.

Chapter three depicts cases of using specialist software to model chemical events, together with the description referring to intuitiveness of operation and knowledge necessary to conduct modeling. In the context of creating hazard scenarios and hazard maps, namely visualizations on the map, the implementation of such programs shall be routine. The study

presents only selected applications, whereas, the use of them or the use of other programs depends on needs of a given person or institution. The designation of hazard zones for various scenarios shall be integrated with spatial information systems. Thanks to the above mentioned, it is possible to automate in a way the calculation of the development area, the height of buildings or to designate buildings of a particular significance located in hazard zones or in the immediate vicinity of them. One shall remember, however, that in order to conduct section analyses (interactions between various thematic layers) it is necessary to obtain those layers from various institutions, mainly from surveying and cartographic units. The cooperation between those institution (among others) mentioned on the onset refers to that aspect. Hazards modeling refers not only to chemical hazards, but also to flood or explosion hazards (designation of affected areas/areas of splinters forming).

In chapter four, I have discussed basic methods of risk analysis and assessment, as the security or rescue system designing is based, to a considerable degree, on risks. I have presented risk assessment methods used in the industry, public administration, as well as in the aspect of occupational hazards and hazards to health and lives of individual people. Those numerous methods are an intended indication to their considerable variety, and they highlight the fact of the necessity to decide which method and which of its parameters shall be used by public administration. The analysis of crisis management plans on the level of the poviat clearly indicates that risk analyses incorporated in them are diversified which entails the lack of possibilities to compare levels of risks for various poviats from the perspective of poviats themselves as well as higher and lower levels of public administration.

The last chapter, chapter five discusses principles and guidelines for the elaboration of applications supporting rescue system designing with consideration of such elements as: functional requirements, non-functional requirements as well as hazards and risks. One shall remember that risk is the "tool" additionally specifying the hazard (or in fact the scenario) with regard to two main parameters: probability and consequences in a given time and area. Identification of risks in security is very important, as, among others, it enables to hierarchy hazards or scenarios. Thanks to those above mentioned risks parameters one may specify their current level and select an appropriate management method. Identification of risks provides responses to three key questions: What may happen? – How frequently may something happen? – What consequences may occur? Certain definitions of security base on risk assessment, defining security as the process or status of the civilization and natural environment surrounding any local community, where this status is defined by the level of the overall risks existing there [Wolanin J.]. In case of security, it is difficult to manage hazards, it is much easier to manage

them through risks, or rather their parameters (probability and consequences). Security is an engineering "product", defined by calculations, such as quantitative or qualitative risk analysis. A wide range of risk analysis methods allows to select an appropriate method for a given purpose, scope and data. Thus, security management refers to maintaining and continuous improving of the accepted level of risks through the implementation of organization rules and management.

The feature of the IT tool for the rescue system designing refers to determining whether currently adopted assumptions regarding the distribution of rescue units, the number of rescuers, the number of vehicles and other equipment, etc. are optimal or not. The implementation of the application demonstrating functionalities discussed in the study will provide an objective justification for investments needs related to the development of a given system or its modernization (obsolete transport means and wrong location – too long arrival times, low level of operational capacity). Even in case of insufficient funds for investments and changes, this method allows for assessment how far the real system deviates from the assumed security level.

The solution demonstrated presents the most recent tendencies and possibilities to support rescue systems designing for various administration levels and it allows to combine efforts of various services, inspections and bodies as well as to achieve synergies. A cohesive use of the possessed potential, uniform operation procedures, determination of responsibilities for activities, as well as planning on the basis of reliable data will enhance the rescue system contributing to improving security. The implementation of the results in practice will bring about measurable benefits exerting a direct influence on the protection of lives, health and property of people by prevention or/and minimization of the occurrence and spreading of a fire, natural disaster or any other local hazard, as well as by ensuring an appropriate quantity of forces and resources to combat the above mentioned. The solution suggested will allow for proper organization and conducting of rescue activities during various events, through proper determination of operational indicators such as: alarming time, departure time, arrival time, time of undertaking rescue operations, time of the event "handling", time of returning to the mother unit, etc. The implementation of functional and non-functional requirements and algorithms of hazards and risk assessment will enable to diagnose the existing rescue systems at the level of the municipality, poviat and region. The elaborated methods, databases, applications and models will support designing and execution of basic tasks set for security systems and they will adjust the afore-mentioned to the specificity of a given type of events. Moreover, they will provide the opportunity to determine necessary rescue forces and means,

when the modification of priorities or simplification of operating procedures are required. Thus, we may point out to openness and dynamism of methods, the results of which may change over the time depending on the hazard. The above mentioned constitutes a tool to design and plan the organization of the rescue system and to launch prophylactic activities, simultaneously reducing the hazard level. The tool facilitates the selection of the most favorable variant of the system organization (including the optimization of the rescue entities distribution), both from the perspective of the assumed security level, as well as from the perspective of financial outlays as well as it will support the process of undertaking decisions regarding the equipment of rescue services.

5. Presentation of other scientific and research (artistic) accomplishments. * In case when an accomplishment refers to a cooperative work /works, the declarations of all the co-authors defining their individual contribution to such work/works shall be submitted

In years 1994 – 1998, I was a warrant officer at the Main School of Fire Service in Warsaw. The decision to join the structure of the fire service was not easy, as I was a student of the Jan Kochanowski High School in Radom, attending the general profile class with extended English. I felt a deep urge to help people and I did not intend to continue doctor's family traditions. Fire service has been and is a rescue formation of the greatest social trust. I completed engineering studies with the degree of a senior fire sergeant, that is, the highest degree possible to obtain. Already during my studies I was awarded by the President of the Republic of Poland with the medal for "Courage and Sacrifice" (1996) and the "The Heart for Hearts" medal (1996), apart from me this medal was awarded to, among others, Mr. Wojciech Kołaczkowski – the Commander of Squadron No. 303.

In 1998, I began working at the position of a junior specialist at the Rector's Office at the Main School of Fire Service, where I dealt with domestic and international cooperation. In years 1999 – 2000, I conducted my master degree extramural studies in the field of fire safety engineering at the Main School of Fire Service, as due to organizational reasons it was impossible for me to study full time. Simultaneously, thanks to the idea and efforts of the then Rector-Commander of the Main School of Fire Service, Chief Brigadier, Prof. Jerzy Wolanin Ph.D., the School was launching the project of the TEMPUS PHARE "*The creation of a new faculty of civil protection*", as a result of which so-called civilian faculty – the Faculty of Civil Safety Engineering (FCSE) was established. In the course of preparations to create the new faculty, I participated in numerous courses abroad, as Polish civil services had no traditions related to civil protection. Key courses include:

- "English Language Course, Encompassing Fire Service and Civil Protection Terminology" organized by The Fire Service College in Moreton-in-Marsh in Great Britain, 1998.
- "Preparing for Disaster Course" organized by Coventry University – The Coventry Centre for Disaster Management, 1999.
- "The Swedish Rescue Services Basic Course" organized by Swedish Rescue Services Agency, 1999.
- "Civilian Defence" organized by Swedish Rescue Services Agency, 1999.
- "The Finnish Civil Protection Course" organized by Emergency Services College, 2000.

Finally, the Faculty was established in 2000 and as the first one in Poland it instigated scientific and didactic traditions in the field of civil protection, crisis management and risk management. Thus, I have had a great pleasure and satisfaction to participate in each stage of the creation and operation of the Faculty, including conducting educational activities. Moreover, since mid 1999 I was the lecturer of the EU program, FORFAIT IST-1999-10649 *"Assessment of risks and hazards related to forest fires: a comprehensive approach*". In relation to the execution of this project my main tasks included managing a research team, participating in working meetings with foreign and Polish partners, as well as participating in reporting meetings in the premises of the European Union. FORFAIT project was one of the first research projects in Poland financed from the EU funds. That undertaking required a considerable engagement as well as numerous substantive consultations. De facto, during that that period I encountered, for the first time, broadly understood risk analysis, modeling, forecasting, historical data analysis illustrated by specific examples of the Kampinos National Park, the national park at the Elba island, and a national park in Spain. The purpose of the FORFAIT project was to create and support DSS - Decision Support System, which was designed to facilitate the execution of undertakings by persons working in the field of risks related to forests fires. The results of the project were expected to enhance launching tools which would eliminate or mitigate adverse effect on humans, environment and business relations – adequately to and depending on the local specificity of a given area.

Thus, I may admit that it was the first case of combining theory with practice in the aspect of security. The team of researchers from the Main School of Fire Service consisted of 3 persons.

Taking advantage of the acquired knowledge I gave lectures for I year of the civilian studies at the Faculty of Civil Safety Engineering, and in June 2001 I was transferred to the

Crisis Management Department at the Faculty of Civil Safety Engineering at the Main School of Fire Service where I assumed the position of the Research Assistant. In July 2001, I completed the course for educators (coaches) in the field of civil protection. Due to the fact that as a research team of the Main School of Fire Service we have proved to be a substantively good and reliable partner we have been offered to submit a joint application in the subsequent competition. As a result of the competition procedure we have won the project of the European Union - *RiskForce* IST-2001-37203 "*Natural Risk Management*", where I was the coordinator of the research team of the Main School of Fire Service. The main objective of the RiskForce project was to combine appropriate groups of institutions and interested persons (final users, institutions, research institutes and the industry) in order to design the set of tasks and to elaborate a common risk management protocol for managing natural hazards in Europe. Subsequently, that protocol was suggested to be implemented in the future structure of GMES (Global monitoring, Environment and Security) compliant with the policy of the European Union.

In March 2002, I completed the training for European experts in the field of maritime and harbor pollution - "*Safer Sea*" organized by Communauté Economique Européenne, l'Institut National des Etudes de la Sécurité Civile, in Brest (France).

At that time, holding the position of the Research Assistant at the Chair of Safety Programming and Managing (FCSE) I had lectures and classes in the subjects: "Crisis management systems", "Rescue systems and structures", "The analysis of selected situations in Poland and abroad", as well as "Crisis management centers". These subjects were completely new in the framework curriculum of the studies, thus, it was necessary to elaborate syllabuses, curricula and materials for classes. Additionally, within the scope of my own professional development, I completed the "Disaster Management Course – Specialised Module Four – Floods" course organized by Bournemounth University, Disaster Management Centre (2003) as well as post-diploma studies "Management in emergency situations" (2005) at the Main School of Fire Service.

With regard to the engineering faculty at FCSE it was necessary to establish laboratories with good equipment, specialist software for modeling as well as other applications for digital maps managing and data "processing", etc. The establishment of laboratories effected the necessity to gain new knowledge, thus, I participated in courses (2006): Introduction to ArcGIS I", "Introduction to ArcGIS II", "Building Geo Bases I", "Building Geo Bases II" together with "Statistica – basic course", etc. Courses and training constituted the supplementation of my

substantive knowledge and they allowed me to introduce modern technologies to the educational process.

The course of my research and academic work is mainly related to the Main School of Fire Service. Fulfilling the duties of the Assistant Researcher at the Faculty of Civil Safety Engineering, I completed a pedagogic course for academic teachers and I additionally participated in doctorate seminars at the National Defense University, which allowed me to gain methodological basis to conduct scholarly work. In 2006, I was appointed for the position of the senior lecturer at the Faculty of Civil Security Engineering, where apart from didactic classes at both Faculties I conducted courses and trainings in the field of civil protection. Moreover, that year I participated in the supplemental course for experts of the national system of contamination detection (ATP-45), organized by the Mass Destruction Weapons Defense Training Center of the Armed Forces of the Republic of Poland at the National Defense University. This course as well as experiences of our country stemming from anthrax hazards constituted a direct cause to undertake scientific work in that field. Events in the United States have highlighted the problem related to the elaboration of the national security system in case of biological weapons use. The above mentioned referred to Poland as well. In Poland, after the events of the United States there were over 900 cases of so-called "white powder" or suspicious consignments reported. Luckily, none of the reported events proved to be a real hazard. In the light of information on potential sources of bioterrorism hazards, the State Fire Service and other services, departments and inspections noticed the necessity to launch and execute operational procedures in case of biological weapons use. My personal experiences as well as the intention to continue scientific activities also in that field indicated that many aspects required a scientific preparation with regard to use of biological weapons in Poland. Aspects of the cooperation of the Armed Forces of the Republic of Poland and rescue services in case of the occurrence of biological hazards in Poland required a new insight. Results of such studies allowed to prepare and then present (June 2007) my doctoral dissertation: "*The model of cooperation between rescue and armed forces in case of biological weapons use in Poland*". My dissertation was intended to elaborate scientifically justified bases conditioning the cooperation of the Armed Forces of the Republic of Poland with rescue services in case of biological weapons use in Poland, in compliance with the system, functional and economic conditions, as well as on the basis of historical data and the then protection against biological hazards. The analysis of the preparation to intervene in case of the occurrence of the event related to use of biological weapons as well as tasks and competences of the Armed Forces, and civilian services, departments and inspections indicated that potential organization and legal

changes based on scientific research may contribute to better, more effective identification, preparation and responses to biological hazards. The collected and elaborated materials, as well as the suggested model of functioning and cooperation between the Armed Forces and rescue services may contribute to changes in organizational structures, as well as enhance the undertaking of cooperation for better biological hazards combating. The results of studies may be implemented in the process of creating the system as well as practical crisis response management during events related to use of a dangerous, biologically active agent.

In order to broaden my knowledge essential for this scientific dissertation, I participated in "Public administration management" post diploma studies (2007).

Having obtained an academic doctoral degree in military sciences, I continued studies on complex problems of collaboration and cooperation during the occurrence of various hazards. Moreover, I have been developing my expertise participating in the research project of "*Models of hazards to an urban agglomeration together with crisis management system on the basis of the capital city of Warsaw*", No. PBZ-MIN-/011/013/2004 headed by Prof. Andrzej Najgebauer, where I was a member of the research team. The participation in various research undertakings allowed me to broaden the scope of my interests. Due to the fact that both biological hazards as well as risk analysis and assessment have constituted to be very interesting areas to me, all the time I have undertaken efforts to research those areas. Numerous meetings and discussions, participations in conferences and cooperation with public administration have broadened my substantive knowledge.

In 2007, I was appointed for the position of Assistant Professor, Head of the Crisis Management Department, the Faculty of Civil Safety Engineering, the Main School of Fire Service. Work on that position enables me to manage the didactic process within the scope of the didactic responsibility of the Department. Assuming the post of the Head I have been developing didactic, scientific and development cooperation with other scientific establishments, public administration entities and private companies.

Additionally, the Minister of Internal Affairs and Administration has recommended me as the expert for works in a working group established to elaborate a methodology for risk assessment and vulnerability to chemical, biological, radioactive and nuclear hazards (CBRN) (Ad-hoc Group on Risk and Vulnerabilities Analysis) within the scope of Civil Emergency Planning (CEP) in NATO (2008). The work in this group is a combination of knowledge in the field of security and risk management in the internal conditions of the state, activities of various institutions, current situation in the world and international relations. The above mentioned

work has allowed me to set the path of my further scientific activity and define it in the area of widely understood risk analysis and crisis management.

In 2008, I was elected for the post of Deputy Dean of Faculty of Civil Safety Engineering at the Main School of Fire Service (at the Main School of Fire Service every Dean has only one Deputy Dean). These were the first elections at the Main School of Fire Service. My basic duties (apart from didactic classes) included initiation and supervision of the execution of research, investment, equipment grants, international cooperation, as well as supervision over a proper execution of the didactic process and conditions of such execution at the whole Faculty as well as substantive control of financial documents regarding the expenditure of FCSE. For several months I deputized the then Dean of FCSE with regard to all matters regarding the operation of the Faculty during his long absence. For the whole time, I have been continuing my scientific activity which I have combined with didactic activity managing it as Deputy Dean. At that time, numerous initiatives related to new post-diploma studies, courses and new specialties in the field of security engineering were created. Moreover, framework plans and study programs have been verified at that time. Furthermore, I was a member of the advisory group of the international project ASPIS (Autonomous Surveillance in Public Transport Infrastructure Systems, Project No. 218513 FP7-SST-2007-RTD-1).

In 2009, I assumed work at the Panning Faculty of the Office for Critical Infrastructure Protection and Planning of the Government Security Center. It was the second, after the assignment in a NATO working group, place in which I could utilize my interests and scientific development in real action. My basic duties included the elaboration of the model of hazards analysis and risk assessment for the needs of the Report on national security hazards as well as the elaboration of the model of hazards analysis and risk assessment for the needs of partial reports to this Report. As a result of my works, the "Procedure for the elaboration of the partial report to the Report on national security hazards together with a calculation sheet" was created. My subsequent task was to conduct trainings in the field of conducting a partial Report by governors, heads of central offices and ministers. For each institution, two meetings were planned. The first meeting for the managing cadre referred to the vision, purpose and scope of the partial Report. The second meeting for executors referred to the scope, manner of providing and passing information. The procedure was established in 2010 and until now it has been a binding document providing the only methodology for risk assessment in formal documents of public administration on a national scale.

Ceasing to fulfill the function of Deputy Dean at the Faculty of Civil Security Engineering I resumed the previously held position, and subsequently, I was nominated to the

position of the Head of a newly established Chair of Security Studies (CSS) of FCSE. The Chair which I headed independently in years 2010 – 2013 organized an international conference "Public Safety Communication Europe Forum (PSCE)" (2011) with the participation of representatives of many European countries and co-organized EMEVAC conference (2011). Within the scope of CSS open, cyclical seminars have been introduced as well as two projects under 7PR and one project of Polish Aid 2012 of the Ministry of Foreign Affairs have been submitted. Moreover, at that time, I had classes and lectures in the field of risk analysis, communication systems in the crisis situation, crisis management and laboratory classes on designing security systems. The headed by me Chair consisted of: the Department of Modeling and Analyses (Laboratory of Spatial Information Systems and Laboratory of Communication in Situations of Hazard) as well as the Department of Crisis Situation Studies (the Laboratory of Crisis Situation Modeling). I actively participated in increasing the educating level at the Main School of Fire Service, by introducing new IT technologies, used in innovative methods of teaching. Apart from a scientific and didactic activity I participated in numerous projects related to civil and fire protection. The participation in the implementation scientific-research projects has been of a great significance for my scientific development. As the project manager I was substantively responsible for the project of the Nation Research and Development Center "*Advanced IT technologies supporting designing a rescue system at levels of the municipality, poviat, region*" No DOBR/0015/R/ID1/2012/03 with the budget of almost 6.5 mio. The project was completed in December 2015.

I was the Head of the substantive team of the Main School of Fire Service for the project titled "*An Integrated System of the Crisis Management Plans Development Based on Modern Information and Communication Technologies"* No.DOBR/0016/R/ID2/2012/03 that was executed by: the Main School of Fire Service, Scientific and Research Centre for Fire Protection – National Research Institute, consortium consisting of: National Defence University, Volunteer Fire Service Association of Poland and Asseco Poland S.A.- participating as an industrial Partner. During that period I was also a leader of the research team of the SGSP project "*Elicit to learn crucial post-crisis lessons - ELITE*" of the 7th EU Framework Programme and member of the research teams of the research and development project No.DOBR/0076/03/001/R/ID194115/2012/03 titled: "*National Security System of the Republic of Poland*" executed for national defense and security and project No. O ROB 0006 01/ID 6/1 titled: "*Improving Fire Safety of Buildings and Building Facilities at the Stage of Their Development and Construction*". I was also a subject matter expert in the project "Good Management – coordination of Civil Protection Actions at the Territory of a Ukrainian Urban

Agglomeration – Safe Evacuation", project No.MSZ 311/2011/PR/2011, executed under Polish Development Aid 2011, Poland and Ukraine. Within the preparation of the football tournament EURO 2012 I was responsible for evaluation of the evacuation conditions at the stadium and hotels in Lvov.

In 2013 the Civil Safety Engineering Faculty of SGSP was given authorisation to open a new, second field: internal security. That led to restructuring of the Faculty that included mainly "assigning" individual fields of studies to the chairs. Three chairs were established: the Chair of Security Engineering, the Chair of Internal Security and the Chair of Social and Human Aspects of Security. The Chair responsible for the field: security engineering is the Chair of Security Engineering. Since 2013, I have been the Director of the Chair that includes 4 departments and 7 laboratories. For many years, I have endeavoured to develop the Chair and its subordinate staff. Currently the Chair of Security Engineering is the best equipped Chair in the structure of the Faculty of Civil Security Engineering. I have also coordinated all didactic activities of my dependent employees and I have assured their high level. In 2014, I introduced modern IT and didactic technologies. I started two didactic laboratories: Crisis Situations Simulation Laboratory and Risk Analysis Laboratory equipping them with the most modern IT equipment and high-technology software for hazards modelling and simulation. Currently, there are ongoing works on starting another laboratory – the Data Processing and Analysis Laboratory. Within the works of the Chair there are conducted status, own and ordered research and there are established scientific and industrial consortia for the execution of scientific and research and scientific and development projects. The research conducted in KIB are usually of international nature and result in various conferences organized by the Mains School of Fire Service (e.g.: Academic Conference "Advanced information and communication technologies supporting development of the rescue system at the levels of: municipality, poviat and region"), including international ones (e.g.: International academic conference "Elicit to learn crucial post-crisis lessons 2014).

Another project for national security and defence financed by the funds of the National Research and Development Centre in which I have participated as the member of the research team was project titled: "*Risk Assessment Methodology for Crisis Management System of the Republic of Poland*" No.DOBR/0077/R/ID3/2013/03.The main aim of the project was development of a universal methodology for risk assessment within the framework of the European Mechanism for Civil Protection.

Within the scope of the scientific development for the last few years I have also participated in some international projects, of which the most important include:

7th Framework Programme

- EDEN project - *End-user driven DEmo for cbrNe* (demonstration project as a continuation of the PRACTICE project). Grant agreement No. 313037. – member of the research team.
- DESTRIERO project - *A Decision Support Tool for Reconstruction and recovery and for the Interoperability of international Relief units in case Of complex crises situations, including CBRN contamination risks*. FP7-SEC-2012-1. Project reference: 312721 – member of the research team.
- SECTOR project - *Secure European Common information space for the interoperability of first Responders and police authorities*, FP7-SEC-2013-1, Project reference: 607821 – member of the research team.
- Research Project BeSeCu - „*Human Behavior in crisis situations: A cross-cultural investigation in order to tailor security-related communication*"; project No. 218324 – member of the research team.
- Research project „*Elicit to learn crucial post-crisis lessons -ELITE*", Contract No.: 312497 – leader of the Main School of Fire Service research team.

EU Stability Mechanism

- The project financed by EU Stability Mechanism: "*Network of universities and institutes for raising awareness on dual-use concerns of chemical materials – CBRN CoE Project 31*" (Service Contract No. IFS/2012/310879) – member of the research team.

Every year staff of the Chair publish articles in Polish and foreign journals, participate in international research networks and act as worldwide experts within the scope of civil protection, crisis management, risk assessment and analysis, critical infrastructure and in many other security-related fields.

So far, I have promoted 40 master theses and 11 engineering theses at the civil security engineering and fire protection engineering fields, as well as several theses at the post-graduate studies. Currently, I am a supporting supervisor of the doctoral thesis of MSc. Eng. Wiktor Gawroński on "*Application of Geo-information Systems in the rescue Activities of the National Fire Service*". The supervisor of the thesis is Col. Prof. Grzegorz Sobolewski, Ph.D. from the

Security Department of the National Defence University. Planned date of the thesis presentation is 2016.

An important aspect of my scientific work was entrusting me in 2011 with the function of a theme editor in the field of Crisis and Risk Management in "*INTERNAL SECURITY*" published by Police Academy in Szczytno, as well as an active participation in the Association of Fire Safety Engineers and Technicians (SITP).

Currently, I am a member of the Steering Committees of two projects of the Nation Research and Development Center: "Construction of IT Systems Supporting Communication in Police and Other Services Subordinate to the Ministry of Internal Affairs in the Aspects of the Internal Security" No. DOB-BIO7/03/01/2015 and "Complete Logistic Support System for Multi-Level Rescue Missions" No. DOBR-BIO4/047/13419/2013.

My involvement in the scientific, didactic and organizational works was appreciated by the Rector, Deputy-Rectors and the Academic Senate of my University and resulted in a nomination for a member of the Polish Accreditation Committee (2015). I was also elected as a representative of the Main School of Fire Service, the Faculty of Civil Security Engineering at "Human and Natural Environment Rescue, Safety and Protection Cluster" (2015).

I am also a reviewer of master and engineering theses, statutory projects and other included publishing, as well as projects and sector programs of the National Research and Development Centre.

For my scientific and developmental activities I was awarded, among others, with the "Medal of National Educational Commission " for special merits in the field of education and pedagogy (2014) and distinction in the category: An institution or a person meritorious as a contributor to the economic development and promotion of the region, Regional Chamber of Industry and Commerce in Częstochowa, Jury of the Competition "Jurassic product of the Year 2014" for a prototype of an application for development of the crisis management plans by the public administration bodies at the level of the municipality, poviat and region. The application was developed within the framework of the project *An Integrated System of the Crisis Management Plans Development Based on Modern Information and Communication Technologies.*

In 2014, I was also awarded a diploma "*Making Safety Second Nature*" for outstanding process safety related research during the post-graduate studies of "Industrial Process Safety" Mary Kay O'Connor Process Safety Center, Texas A&M Engineering Experiment Station within the scope of completed post-graduate studies "*Safety of Industrial Processes*" supervised by Prof. Adam Markowski from Łódź University of Technology.

In 2015 I was awarded by Minister of Internal Affairs for *Didactic achievements, including innovative methods of teaching and imaginative preparation of didactic materials* and award of the Minister of Science and Higher Education for achievements in inventions in 2014 of international significance during XXII Inventions Fair at the Copernicus Science Centre.

My scientific interests include mainly civil protection, crisis management in the field of threat identification, risk assessment and analysis, development of the security systems and decision support systems, mainly for crisis management.

Summing up my current scientific contribution I would like to underline that it adheres thoroughly to the aspects of social sciences. My scientific, didactic and promotional activities are connected with civil protection, including mainly crisis management matters, cooperation, correlation and optimization of functioning of various rescue and support entities, as well as risk management. My works are characterized by a good scientific workshop. As the Head of laboratory, Chair and Deputy Rector, I have put a lot of efforts and involvement to implement results the newest achievements in the field of security to the framework programs of the 1st and 2nd degree studies. I have managed a research environment of my university as well as of the inter-university cooperation and cooperation with the entrepreneurs. I have cooperated with several entities of various levels in the implementation of the systemic solutions within the scope of, e.g. NATO, RCB. I am a main author of the risk assessment and analysis used by public administration bodies for development of partial reports to the Report on hazards to national security. The result of this cooperation are national and international projects. My latest achievement was winning 7th research and development competition for project "*Development of innovative safety management system for historical objects in urban city centers*" No. DOB-BIO7/08/01/2015 executed for the benefit of national defense and safety (2015-2018) in which I have been the project manager and research teams leader. My didactic work is characterized by professionalism and involvement, setting ambitious goals, focus on development and implementation of innovative methods of teaching, as well as by continuous pursuit to broaden and enhance knowledge and technical didactic database, without which execution of ambitious goals would not be possible.

Warsaw, 15.02.2016