

MODERN INFORMATION TECHNOLOGIES AND GENERAL PUBLIC PROTECTION IN THE REPUBLIC OF BULGARIA

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Bulgaria is in the process of adapting its system for crisis and emergency management to the requirements of democratic governance, market economy and membership in NATO and the European Union. With the start of the comprehensive defense reform in 1999, the Civil Protection Agency, until that time part of the Ministry of Defense, received the status of a State Agency as a first-level budget holder directly subordinated to the Council of Ministers. Dealing with a variety of natural and man-made disasters, the Agency cooperates with numerous organizations, including the Ministry of Defense, the Ministry of the Interior, local authorities, etc. The Agency has a range of capabilities allowing it to serve as the central national authority in dealing with civil emergencies. With a history of timely and efficient contribution to mitigating the consequences of natural disasters in neighboring countries, it further plays a very active role in promoting emergency management cooperation in South East Europe.¹ After describing the roles of the Agency, this paper presents major developments in implementing advanced information and communications technologies both in national and international setting. The recently signed Agreement on the establishment of the Civil-Military Emergency Planning Council for Southeastern Europe is given in the appendix.

Roles of the Civil Protection Agency of the Republic of Bulgaria²

The State Agency for Civil Protection of the Republic of Bulgaria (CPRB) is part of the Bulgarian national system of governmental, organizational, economic, scientific and social activities aimed to protect the population and the national economy in disasters, accidents and catastrophes. CPRB drafts laws and regulations regarding the protection of population and the national economy. It is responsible for establishing, recruiting, training and using civil protection units and their readiness for rescue and

protective activities. CPRB supervises the development of plans for the protection of the population and national economy; organizes the protection of the population; directs and carries out training of the members of the public for protection, assistance and mutual aid in disasters, accidents and catastrophes.

The Agency cooperates with the Armed Forces during rescue and emergency operations in disaster struck areas. CPRB is responsible for prevention and mitigation of harmful consequences when emergencies arise, as well as for application of international experience in civil protection in disasters and accidents in line with the principles and standards of International Humanitarian Law. It notifies the population and governmental authorities when disasters, accidents and catastrophes arise.

The Civil Protection Agency maintains the National Crisis Management Center that collects, processes, analyses and classifies the complete information on the occurrence of an emergency situation and informs the government authorities; organizes the interaction between state agencies and regional structures during liquidation of consequences from disasters, accidents and catastrophes.

The CPRB activities cover the whole territory of the country, interacting with the state and local administration, industrial and other organizations. Locally, CPRB's Directorates in the Regional Administrations and specialists in Municipality Administrations provide assistance to regional governors and mayors in execution of their tasks in preparation, organization, execution and control of the protection of population and national economy in disasters, accidents and catastrophes.

Table 1 provides statistical information on registered accidents and disasters in the year 2002 in comparison with 2001.³

The Civil Protection Agency maintains the National Plan for carrying out rescue and urgent emergency restoration activities. The Plan considers the following issues: general forecast of the potential disasters and accidents, of their consequences and final outcome, emergency preparedness, alerting and getting the authorities and forces ready, management, organization and carrying out of the rescue and urgent emergency restoration activities, types of insurance, order of implementation of the plan and the responsibilities, order of informing of the country, the population, etc.

On the territory of the country CPRB maintains 18 rescue teams with professional staff and one chemical protection unit. The rescue teams maintain a permanent day and night shifts. In emergency they cooperate with the National Fire Service and the National Police forces, emergency medical help centers and teams for rendering of specialized medical help; units of the Bulgarian Red Cross, units/ teams of the Mountain Rescue Service and the Water Rescue Service, support points, sanitary

teams and posts. If necessary, units of the armed forces can take part in emergency activities.

Table 1. Registered disasters in Bulgaria in 2001 and 2002

№	Type of disaster	Number of accidents		Change in percents
		2001	2002	
1.	Fires	30 948	18 451	-40
2.	Incidents involving radioactive sources	27	38	+414
3.	Industrial accidents	24	17	-29
4.	Incidents involving industrial poisonous chemical substances	64	119	+86
5.	Incidents involving mercury	33	52	+58
6.	Incidents involving bombs and unexploded charges	108	132	+22
7.	Earthquakes	50	110	+120
8.	Snowstorms and Icing	164	243	+48
9.	Floods	29	1 667	+5648
10.	Heavy highway and railway accidents	6 675	6 683	+0.1
11.	Landslides	36	210	+483
12.	Hailstorms	32	68	+113
13.	Wind Storms and Heavy Rains	148	388	+162
14.	Avalanches		1	+100
15.	Zones of contagious diseases	11	84	+664
16.	Recovery of drowned people	57	64	+12
17.	Others	629	1 698	+170
Total		39 035	30 025	-23%

The data in the Table obviously shows that the total decreasing of the arising accidents on the country territory in 2002 are due to of significant smaller number of registered fires and industrial accidents. All rest values of indexes are higher than these for 2001.

Advanced IT in support of Emergency management

The extensive development of information technologies (IT) gave rise to various applications in the last few decades. In spite of resource constraints, through coordination of own, national and international programs the State Agency for Civil Protection implements advanced information and communications technologies across its activities.

General public protection and emergency management in the event of natural and man-made disasters are functions directly related to the process of risk assessment and potential hazard evaluation, which presupposes the employment of high-tech methods for analysis and modeling. The introduction of up-to-date techniques for collecting, processing and handling data in support of the decision-making and emergency management system plays a major role for the success of the preventive activities and prompt response to natural and technological disasters.

The objectives for the setting up and functioning of the Civil Protection Information System include collecting, processing and distributing data, analysis and assessment of chemical, biological, hydro meteorological crisis situations, as well as situations related to traffic, fire or radiation including natural disasters, technological incidents and traffic accidents. The Information System is structured at four levels ⁴:

- First level – national government (Permanent Commission for Protection of the Population in the Event of Major Natural and Man-Made Disasters /PCPP/ under the Council of Ministers; National Situation Center – Civil Protection Agency, ministries and agencies);
- Second level – district administrations;
- Third level – municipalities;
- Fourth level – peripheral (high-risk industrial or business facilities, power stations, sensitive points, research sites, observatories, warning and alert systems, etc.)

Through the existing *Matra 6501* digital communication system the establishment of 30B+D (2 Mbps) high-speed primary access to *Integrated Services Digital Network* (ISDN) of the Bulgarian Telecommunications Company PLC is possible. The integration of our information system to the National Administration Network is also feasible. In that way, speedy and reliable exchange of voice, data, textual messages, geographic information and images among the ministries, central agencies and local administrations can be supported.

In compliance with the *Rules on the Organization of Emergency Response and Elimination of the Consequences of Natural and Man-Made Disasters* radio communication systems for mobile, operative and emergency communication have

been built in the districts of Stara Zagora, Bourgas, Plovdiv, Kardzhali, Haskovo, Varna and Dobrich. These systems are designed for the needs of the Civil Protection and Permanent Commissions for Protecting the Population and Managing Search and Rescue (SAR) operations in the event of disasters or other emergencies.

Improving the organization and coordination of SAR and recovery activities in emergency situations demands the creation of radio communication systems in the remaining districts as well as the connection to the newly built local systems of other ministries and organizations. This problem will be finally solved by setting up a system based on modern technologies and radio communication standards (TETRA) and the appointment of an authorized operator of that system. The operator should have competence related to national security. Thus, compatibility and interoperability among the specialized professional forces and the teams of the different jurisdictions would be achieved in the process of information exchange – voice messages, data, geographic information and images from the disaster-stricken site.

The tendency for extending the IT applications to cover a larger number of human activities (research as well as management and planning) corresponds to the increased need for developing and implementing specific projects and systems supporting the overall processes of prevention and population protection.

The EDRIM—Electronic Discussion Group for Risk Management—program has been designed and is currently being set up by a leading communications and IT company by order of the Council of Europe. This IT system is intended to be the backbone of the European states' information system used for emergency management. The system is tailored to the current needs providing for services as follows:

- Non-delay, round-the-clock, all the year through communications;
- Exchange of views among all correspondents;
- Private (service) informing of the customers;
- Cooperation for efficient decision-making;
- Distribution of experience and new information.

The services above are supported during emergencies as well as in the course of planned computer-assisted workshops (meetings), exercises and training practices with the use of:

- Internet-based applications;
- Video teleconferencing;
- Electronic forums;
- Distribution of software applications and products – GIS, Word, Draw, etc.

ISDN systems, generally available in most European states, will be employed as transfer media.

The expected result is the achievement of real-time transfer (exchange) capabilities and coordinated work on:

- Plain text messages, images, video films, sound and other multimedia applications;
- Research and technical data (data bases).

The network architecture will be designed at three levels – international, national and local (regional).

The Geographic Information Systems (GIS), being an integral component of the IT systems above, possess great potential as a powerful tool for area measurements and registration of events in disaster locations, inhabited places management, statistics, search and rescue operations, environmental protection, communications, etc.

In compliance with the International Danube River Convention signed in 1994,⁵ a Program on the Protection of the Danube River Environment was adopted in 1999⁶ setting up a common Emergency Notification and Alert System for the Danube River Basin. The Danube River disaster and incident warning system provides for:

- On-time receiving, processing and transferring information on an incidental pollution of the Danube River water with potential trans-boundary effects;
- Timely notification of the Danube states with the purpose of danger reduction, identification of the source of pollution, damage handling and elimination of further losses and general public information.

By a decision of the Danube Secretariat in Vienna already thirteen Principal International Alert Centers (PIAC) have been installed, respectively in Germany, the Czech Republic, Hungary, Slovakia, Slovenia, Romania, Moldova, Austria, Ukraine (2 centers), Bulgaria and Bosnia. The International Alert Center is the basic operational unit of the system. It is responsible for collecting and processing information, decision-making and coordinating the response of international cooperation. The technical equipment of the International Alert Center includes computer hardware and software, as well as INMARSAT-C satellite transceivers.

Since 1997, the Ministry of Environment, Civil Protection State Agency and the Nuclear Regulatory Agency have been using the *National Automated Radiation Monitoring System (RAMO)*.⁷ The system includes the following facilities:

- Central Monitoring Station at the Executive Agency on Environment and Waters;

- Mobile Monitoring Station;
- Regional Monitoring Stations;
- Response Cell at the Civil Protection Situation Center;
- Local Monitoring Stations;
- Control Monitoring Points at the CPRB and the Nuclear Regulatory Agency.

Information exchange between the different elements of the system is performed via modem on phone and radio channels. The software allows the reception of up-to-date visual operational information, the evolution of the radiation levels and signal indication of change in the background radiation. Usually, 10 minutes is the shortest time interval for updating the information coming from monitoring stations to the server in the Central Monitoring Station. The measurement and report interval should be shortened to 2 minutes if the radiation background is increased. The integration of the RAMO system with the *Kozloduy* Nuclear Power Plant Off-Site Radiation Control System has been realized since 2002. The projected extension of the system would include:

- Additional local monitoring stations to complement the system in the southeastern part of the country. Local monitoring shall provide for registering potential tritium pollution in case of release as a result of the operation of *Cherna Voda* Nuclear Power Plant in Romania;
- Using the full capacities of the available doze rate meters—RIT display boards installed at the municipalities—by connecting them to the radiation control system, full automation and avoidance of human factor.

In conclusion, there is no doubt that the modern information technologies play a significant role for the success of crisis management and post disaster recovery missions. The extended range of IT applications will facilitate the decision-making process and the efficient coordination and cooperation on both national and international levels.

AGREEMENT

ON THE ESTABLISHMENT OF THE CIVIL-MILITARY EMERGENCY PLANNING COUNCIL FOR SOUTHEASTERN EUROPE

Preamble

The States-Parties to this Agreement, hereinafter referred to as the Parties;
Reaffirming their dedication to the purposes and principles provided by the United Nations Charter;

Cognizant of the fact, that civil military cooperation has become a very important element for enhancing mutual assistance among nations in the field of disaster relief;
Believing that close cooperation and coordination among the nations of Southeastern Europe must be further developed;

Stressing the importance of International Organizations and Non-Governmental Organizations in the disaster relief and response field;

Supporting the United Nations', North Atlantic Treaty Organization's, and Euro-Atlantic Partnership Council's efforts in disaster relief.

We have agreed as follows:

Article I. PURPOSE

The purpose of the present Agreement is to create the legal framework necessary for the immediate and efficient planning and coordination of the available resources, according to the decision of each Party, for disaster relief and intervention. For this purpose the Parties hereby establish a Civil Military Emergency Planning Council for Southeastern Europe, hereinafter referred to as the Council.

Article II. DEFINITIONS

For the purpose of the present Agreement, the following definitions shall apply:

“Civil defense institutions” or “Civil protection institutions” means the national emergency management authorities or bodies, which take preventive measures and action in the event of a disaster, hereinafter referred to as the Institutions.

"Disaster" means a natural or technological event, which causes or threatens destruction or damage to life or property of such magnitude as to seriously endanger the public health, safety and welfare of populations. Natural or technological disasters include, *inter alia*, earthquakes, volcanic eruptions, landslides, floods, droughts, environmental pollution, pest infestations, forest fire, dam failures, epidemics, nuclear power plant accidents, chemical and industrial accidents, air-crashes, railway accidents, and ship wrecks.

“Disaster relief” means any action taken for saving life, protecting property and returning life as soon as possible to normal activity.

“Other States” means any State not a Party to this Agreement.

Article III. ROLE OF THE COUNCIL

The role of the Council shall be to consult each other as necessary about the Parties’ methods, practices, and circumstances in order to enhance practical cooperation in disaster management. It is recognized that this consultation shall help alleviate the magnitude of damages from disasters.

The Council shall coordinate efforts in all phases of the disaster management cycle: mitigation, prevention, planning, response, and reconstruction.

Article IV. COUNCIL’S AREAS OF COORERATION AND ACTIVITIES

The Council’s areas of cooperation and activities shall include the following:

- Develop processes and means for practical regional cooperation in disaster management;
- Develop improved coordination methods for all phases of the disaster management cycle: mitigation, prevention, planning, response, and reconstruction;
- Develop a regional risk assessment;
- Develop recommended response plans for the greatest risks;
- Develop standard operating procedures for additional Council activities and interoperability; and
- Plan, organize, and conduct exercises and training.

The Council’s fora shall include:

Annual gatherings, or as necessary, to consult on plans and procedures and the exchange of information, including inventories of any personnel, response organizations, materials, and equipment available for disaster relief;

Other fora as may be necessary for additional consultation between the Parties and Other States, International Organizations, and Non-Governmental Organizations.

Article V. STRUCTURE

The consultation and decision making of the Council shall be done with civilian and military personnel. The Council shall be composed of the heads or their representatives of the Institution(s).

The Council shall form working groups as necessary to explore and develop the Council’s areas of cooperation and activities. The Council shall approve the terms of reference for the working groups.

The Council shall form a Provisional Secretariat. The Provisional Secretariat shall meet as needed to coordinate the Council’s areas and activities and to plan the annual meeting.

If a Permanent Secretariat is needed, it shall be agreed to in a supplementary agreement.

Each Council gathering shall be chaired and hosted by a Party. The position of the Chairman and Vice-Chairman shall be rotational according to the agreed order and hold office for a designated time period. The Chairman and Vice-Chairman shall be chosen at the first formal meeting of the Council. The position of Chairman and Vice-Chairman shall last for one year beginning on the first of January. The Party that chairs the Council shall organize and host the annual meetings.

Article VI. DECISION MAKING

All decisions of the Council shall be made by a consensus of the Parties.

Article VII. FUNDING

Each Party shall be responsible for funding its national participation in the Council meetings and activities. Other possible sources may be asked to contribute and the Council can accept contributions to support the Council's efforts to the accomplishment of this agreement.

Article VIII. EXTERNAL RELATIONSHIPS AND OTHER INTERNATIONAL OBLIGATIONS

Decisions of the Council shall be submitted to Parties' national authorities for implementation and for approval if necessary. The non-acceptance of one Party does not preclude the execution of the decision by the other Parties.

Inasmuch as it is probable that the pattern for mutual aid among two or more Parties may differ from that appropriate among other Parties, nothing contained in this agreement shall preclude any Parties from entering into agreements with other Parties, Other States or International Organizations.

The Council may invite disaster relief agencies of Other States, International Organizations and Non-Governmental Organizations to act as a consultative body under this agreement. The Council may also invite other states or representatives of their agencies, International Organizations or Non-Governmental Organizations to attend the respective meetings of the Council in a non-decision making capacity, as observers.

The Council shall promote an active policy in order to attract other resources.

Noting of this agreement will prejudice rights and obligations of the Parties deriving from international law, international agreements and arrangements to which they are parties.

Article IX. ACCESSIONS

The present agreement shall remain open for accession by other states, able and willing to contribute to its purpose by invitation or request. Accession shall be subject to Approval by consensus of Parties.

Article X. AMENDMENTS

Any Party may suggest amendments to this agreement at any time. The Parties suggesting the amendments should provide the other Parties copies of the amendment at least thirty (30) days before the Council meetings on the amendment. Amendments shall enter into force according to provisions of Article XII.

Article XI. DISPUTES

All disputes arising from the interpretation or application of this agreement shall be settled by consultation between the Parties without recourse to outside jurisdiction.

Article XII. RATIFICATION – ENTRY INTO FORCE

This agreement shall be subject to ratification. All instruments of ratification shall be deposited in the country where this agreement is signed. The Depository shall notify the Parties of each deposit. Thirty (30) days after four signatory Parties have deposited their instruments of ratification, this agreement shall enter into force among them. For the remaining signatory Parties the agreement shall enter into force thirty (30) days after the deposit of their instruments of ratification.

For Other States acceding to this Agreement, it shall enter into force thirty (30) days after the deposit of its instrument of accession.

Article XIII. DURATION AND TERMINATION

This Agreement is valid for a ten-year period and subject to automatic renewal for additional ten-year period, unless the Parties decide otherwise.

Article XIV. DENUNCIATION

Any Party may denounce the present Agreement at any time. This denunciation shall be effected by a written notification addressed by this Party to the depository. The denunciation shall take effect one month after the receipt of the notification. After the expiration of this period, the Agreement shall cease to be in force as regards the Party which denounced it, but it shall continue to be in force for the remaining Parties.

This Agreement signed at Sofia, Bulgaria, on 03 April 2001 in one original in the English language, shall remain deposited in the Archives of the Depository. Duly certified copies shall be transmitted to the Parties.

Signed by:



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Nikola Nikolov

Chairman of the State Agency for Civil Protection



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Zarko Katic

Assistant Minister of Interior



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Dusan Gorgievski

Assistant to the Minister of Defense for Civil Protection



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Damjan Lah

Deputy Director of the Administration for Civil Protection and Disaster Relief

Notes:

- ¹ For details on Southeast European cooperation in crisis and emergency management the reader may refer to the articles by Petya Dimitrova and Todor Tagarev in the current volume.
- ² “Organic Regulations for the State Agency ‘Civil Protection’,” Decree # 53 of the Council of Ministers of the Republic of Bulgaria, *State Gazette* 22 (9 March 2001), Amendments, *State Gazette* # 87 (15 October 2001) and # 108 (14 December 2001). Details and regular updates are available through the Website of the Civil Protection Agency at <http://www.cp.government.bg/>.
- ³ The original source is the database of the National Situation Center of the State Agency for Civil Protection.
- ⁴ Regulations for the organization and activities on prevention and mitigation of consequences of natural and technological disasters, accidents, and catastrophes, Decree # 18 of the Council of Ministers of the Republic of Bulgaria, *State Gazette* 13 (2 February 1998), Amendments, *State Gazette* # 3 (11 January 2000) and # 22 (9 March 2001), <<http://www.cp.government.bg/normativna-18.html>> /in Bulgarian/.

- 5 *Convention on Cooperation for the Protection and Sustainable Use of the Danube River* (Danube River Protection Convention), <<http://www.defyu.org.yu/E-catchment/catchment2-2-1.htm>>; <<http://ksh.fgg.uni-lj.si/danube/envconv/>>.
- 6 Program on preservation of the environment in the basin of Danube River, ?????. See also *Danube Pollution Reduction Program* (DPRP), Danube Program Coordination Unit, <<http://www.defyu.org.yu/E-catchment/catchment2-2-2.htm>>; <<http://www.oieau.fr/cieedd/contributions/atriob/contribution/danube.htm>>
- 7 Regulation on the development and exploitation of the national automated system for continuous monitoring of the radiation background in the Republic of Bulgaria, *State Gazette* 112 (1997).

SVETOSLAV ANDONOV is Deputy Chairman of the State Agency for Civil Protection since April 2001. He holds a degree in chemical engineering from the Army Academy, 1968, and M.Sc. degree in organic synthesis from the Chemical Technology University in Sofia, 1978. Mr. Andonov is 1984 graduate of the “G.S. Rakovsky” Defense College in Sofia. He specializes in radiation protection and emergency preparedness and manages the emergency activities in case of pollution of Danube River with toxic chemicals. Mr. Andonov is trained under the Convention on the Prohibition of Chemical Weapons and is Supernumerary Inspector for the Republic of Bulgaria under this Convention. He underwent extensive training at the Environmental Agency of the USA, related to toxic industrial substances, dangerous waste and response to chemical accidents. Mr. Andonov is national coordinator for the exercises on radiation response activities in case of nuclear accidents.

KATERINA KOSTADINOVA is Chief of the NBC & Ecology Department of the State Agency for Civil Protection since 2000. She holds a M.Sc. in physics from the “St. Kliment Ohridski” Sofia University, 1988, with specialization in nuclear physics. Ms Kostadinova is with Civil Protection Agency since 1996. She is in charge of control and data processing on potentially dangerous sites in Bulgaria; chemical and radiation accidents emergency planning and response; inspection of chemical plants, sites using radioactive sources, and the nuclear power plant; control on pesticides stockpiles; data processing and inspection on individual protective equipment in Republic of Bulgaria.

EMIL SIMEONOV is Chief of Section “Telecommunications Systems” of the Crisis Management Department in the State Agency for Civil Protection. He is graduate of a technical college (Radio and Telecommunications) and holds a M.Sc. degree in Automation from the Technical University of Sofia (1972). Mr. Simeonov has worked as researcher in the area of telecommunications. His professional interests are in application of advanced communications technologies, geographic information systems and Web services in the area of crisis warning and emergency management. Mr. Simeonov is fluent in English and Russian.
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