

# JOINT RISK ASSESSMENT

## Abstract

The present document has been developed under project: Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina, tender for consultancy services for conduction of studies under project CB007.1.31.287, location - Republic of Bulgaria/ Republic of Serbia.

Center for social and economic development

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## **BACKGROUND**

### ***Background project information***

The present document has been developed under project: Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina, tender for consultancy services for conduction of studies under project CB007.1.31.287, location - Republic of Bulgaria/ Republic of Serbia.

The Project "Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina " will support joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina. The project will focus on building sustainable cross-border capacity and join system for management and liquidation of consequences of natural and man-made disasters in the municipalities of Svoge and Merošina. The above referred municipalities from the border area have close social, economic, cultural, demographic and other characteristics and often face similar crisis situations. A major challenge for the municipalities of Svoge and Merošina is the lack of adequate equipment and resources for action in case of disasters. The project will allow for the purchase of necessary equipment, exchange of experience, creation of conditions for joint action and sharing of resources in the event of natural and man-made disasters in the border area. The project will be conducive to better cross-border cooperation and will establish a sustainable mechanism and model for risk prevention and management in the cross-border area.

The project will establish a system for effective sharing of resources on local and regional level, which is one of the key factors for successful prevention and mitigation of the consequences of natural and man-made cross-border disasters. The Lead partner under the present project - Svoge Municipality – regularly suffers from wild fires and flooding resulting in blockage of sewerage system and sewage overflow, which creates a major health risk for the local population. The municipality of Merošina on the other hand is located in the Nišava District and regularly experience wild fires and flooding problems. The municipalities of Svoge and Merošina have close social, economic, cultural, demographic and other characteristics and often face similar crisis situations. A major challenge for the municipalities of Svoge and Merošina is the lack of adequate equipment and resources for action in case of

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disasters. The project will address the above-referred challenges by creating an opportunity to purchase necessary equipment, exchange of experience, create conditions for joint action and sharing of resources in the event of natural and man-made disasters in the border area. The project "Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina " will establish an effective resource sharing and joint management system that will help for overcoming future environmental risks.

'The Project "Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina" will directly contribute to achieve Programme overall aim by stimulating the balanced and sustainable development of the Bulgaria-Serbia border region integrated in the European space. The project implementation will establish a model and create conditions for environmental change adaptation in the cross-border area of Bulgaria and Serbia by joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina.

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## ***Tender information***

### *Description of the assignment*

The activity implementation will take place in the NUTS III regions of Nišava and Sofia. The activity is aimed at the implementing joint risk assessment and preparation of plans and procedures for emergency situations for the municipalities of Svoge and Merošina. The implementation of this activity will have a direct impact on the efficiency and effectiveness of the cooperation in the Bulgaria Serbia cross-border area. The joint risk assessment will help to identify key areas for cooperation and develop a joint early warning system. The activity implementation will result in the development of joint action plan, joint emergency management plan and procedures for emergency situations. The methods for the implementation of this activity will include: analytical methods, baseline assessment; risk assessment; development of RMC cards; risk ranging, development risk elimination and mitigation strategies; development of a joint risk management plan; organization of round tables for local stakeholders in the field of prevention and management of natural and man-made disasters form both Svoge and Merošina.

In the implementation of the contract will be involved experts in the area of strategic planning with specific expertise and experience in the fields of emergency management, natural and manmade disaster management and prevention. The experts shell have proven experience in organizational analysis, as well as academic background in the field of administrative structure management, specifically related to national security and natural and manmade disaster management and prevention.

### *Geographical area to be covered*

The project will cover the municipalities Svoge and Merošina, NUTS III regions of Nišava and Sofia in the CBC countries Bulgaria – Serbia.

### *Target groups*

The different target groups of the assignment are as follows:

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- local population living in risk of natural and man-made cross-border disasters, local authorities;
- local administrations in Svoge and Merošina;
- the voluntary teams involved in natural and manmade disaster management;
- population of Svoge and Merošina, SME sector, residents of neighboring municipalities.

### *Specific work*

This activity consists of two main tasks:

- ❖ Task 1: “Joint risk assessment”

The development of “Joint risk assessment” will include:

- Thorough analysis of the strategic and planning documentation on the local and regional level related to natural and manmade disaster management and prevention in the respective NUTS III regions and municipalities;
- Analysis of the legal framework and organizational structure on municipal and regional level with regard to natural and manmade disaster management and prevention;
- Baseline assessment of the institutional capacity, functions and coordination related to natural and manmade disaster management and prevention;
- Natural and manmade disaster risk assessment;
- Risks identification through interviews and questionnaires;
- Development of RMC cards;
- Risk ranging and development of risk elimination and mitigation strategies;

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- Formulation of specific measures and policies in the field of natural and manmade disaster management and prevention
  - Development of a joint natural and manmade disaster risk management plan.
- ❖ Task 2: “Joint action plan, joint emergency management plan and procedures for emergency situations”.

The development of “Joint action plan, joint emergency management plan and procedures for emergency situations” will include:

- Development of a joint data base of the respective authorities in the field of natural and manmade disaster management and prevention containing contact information, functions, competencies and structure;
- Development of joint action plan for natural and manmade disaster management and prevention containing specific responsibilities, time frame and resource allocations;
- Development of joint implementation schedule for the action plan for natural and manmade disaster management and prevention;
- Instructions for institutional coordination and implementation of the action plan for natural and manmade disaster management and prevention;
- Development of dynamic scenarios for natural and manmade disaster events ;
- Natural and manmade disaster scenario modelling ;
- Natural and manmade disaster scenario planning;
- Development of cross-border response patterns for natural and manmade disaster events;
- Resource planning and sharing models and procedures for natural and manmade disaster events;

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- Development of measures and procedures for cross-border response to natural and manmade disaster events;
- Development of joint emergency management plan based on the dynamic scenario modelling.

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## **Project management**

### ***Responsible body***

Svoge Municipality will be Contracting Authority. Beneficiary country it's Republic of Bulgaria. The Contracting Authority is responsible for conducting the current tender procedure, signing the service contract and carrying out the overall control on the contract implementation.

The Contracting Authority will appoint a contact person (as part of project management team) for the project who will be responsible on its behalf for the approval of all drafts of the materials and communication with the Contractor.

The Contractor is fully responsible for the quality and timely delivery of the contract results, according to the contractual provisions. In this sense, the Contractor shall ensure that the reports are delivered in time and the executed activities are in line with the ToR.

### ***Management structure***

Management structure of the Svoge Municipality (Contracting Authority) is based on the legal framework in the field of local self-government and administration. The Mayor of Svoge is the legal representative of the organization.

### ***Overall objective***

The overall objective of this tender is to establish a model and create conditions for environmental change adaptation in the cross-border area of Bulgaria and Serbia by joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina.

The successful implementation of the activities envisaged under the present tender will directly contribute to the realisation of the overall project objective by creating a strategic framework, plans, procedures and guidelines for joint action and coordination in the prevention and mitigation of the

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consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina.

### ***Purpose***

The Project "Joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina" will support joint prevention and mitigation of the consequences of natural and man-made cross-border disasters in the municipalities of Svoge and Merošina. The project will focus on building sustainable cross-border capacity and join system for management and liquidation of consequences of natural and man-made disasters in the municipalities of Svoge and Merošina.

The successful implementation of the activities envisaged under the present tender will directly contribute to the realisation of the above stated purpose since the analyses, assessments and development of strategic documents, plans, procedures and guidelines is key to the development of sustainable cross-border capacity and join system for management and liquidation of consequences of natural and man-made disasters in the municipalities of Svoge and Merošina.

The purposes of this tender are as follows:

- To make a joint risk assessment in the both municipalities;
- To elaborate joint action plan, joint emergency management plan and procedures for emergency situations

The purposes of this tender are related to the overall project successful implementation. The process of realization of the above stated tender purposes is presented in detail in the present document as methodology and organization below.

### ***Results to be achieved***

- One joint risk assessment made.
- Elaborated joint action plan, joint emergency management plan and procedures for emergency situations.

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The results to be achieved by the contractor are vital for the successful implementation of the whole project. In that regard there are several key issues related to the successful implementation of activities in particular regarding the objectives and expected results subject to the present tender and the ToR which are planned to address by the following measures:

- Development of a systematic approach towards implementation;
- Ensuring the qualification and experience of the proposed experts;
- Establishment of effective and efficient risk identification and assessment methodology;
- Survey and analysis of relevant legislation and strategic documentation;
- Survey and analysis of relevant local and regional administrative structures capacity with regard to project implementation;
- Provision of strategic management knowledge and approach towards activities implementation;
- Excellent time management and planning of activities;
- Efficient communication with LP and PP2 teams;
- Survey and analysis of Svoge and Merošina municipalities and the respective NUTS III regions;
- Provision of knowledge on Interreg-IPA Cross-border Cooperation Bulgaria-Serbia Programme goals, objectives and requirements.

An explanation of the risks and assumptions affecting the execution of the contract.

The identification and assessment of risks is vital to successful implementation of contract activities.

The potential risks to the successful implementation of the contract as stated in the Terms of Reference to the present tender include:

- Lack of communication and logistical coordination between the Contractor and the Contracting Authority. In order to avoid this risk, the Contractor should show initiative and maintain continuous

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contact with the relevant representatives of the Contracting Authority.

- Insufficient quality of the services provided by the Contractor experts and suppliers. In order to avoid this risk the Contractor should use the most reliable and experienced staff/service providers on its disposal.
- Poor cooperation between the Contractor and the target groups during the implementation of the contract.
- Political instability in one of the partnering countries.

In addition the potential risks stated above additional potential risks affecting the execution of the contract could be identified, monitored and if necessary addressed:

- Lack of support on behalf of stake holders on local, regional level and national level;
- Inefficient communication and coordination with project partners and the JS;
- Poor timing and planning of contract activities;
- Inconsistent legislation and strategic documentation framework;
- Lack of motivation and willingness to share knowledge, information and resources among local and regional authorities and administrative structures.

The Assumptions underlying the project as formulated in the ToR of the present tender are as follows:

- Clear understanding of the contract objectives and purposes on behalf of the Contractor;

The clear understanding of the contract objectives and purposes on behalf of the Contractor will guarantee effective implementation of the tasks and activities envisioned in the project and tender documentation.

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- Full cooperation between the Contracting Authority and the Contractor in view to fulfil the tasks on time, with high quality and within the budget limitation.

Cooperation between the Contracting Authority and the Contractor in view to fulfil the tasks on time, with high quality and within the budget limitation is vital for the successful realization of the contract and the respective activities.

In addition to the assumptions stated above additional assumptions affecting the execution of the contract are:

- Efficient analysis of cross-border opportunities for disaster management and prevention is vital for successful cooperation of project partners;
- Effective and efficient cross-border cooperation is beneficial and conducive to prevention and mitigation of the consequences of natural and man-made disasters;
- Mutual planning and resource sharing is key to prevention and mitigation of the consequences of natural and man-made disasters;
- Intelligent and cost-efficient resource allocation requires coordinated specialization and joint investment plans.

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**THOROUGH ANALYSIS OF THE STRATEGIC AND PLANNING  
DOCUMENTATION ON THE LOCAL AND REGIONAL LEVEL  
RELATED TO NATURAL AND MANMADE DISASTER  
MANAGEMENT AND PREVENTION IN THE RESPECTIVE NUTS III  
REGIONS AND MUNICIPALITIES**

In recent years, disaster risk reduction has become a global priority. Evidence is provided by the documents adopted by the European Union (EU) member states, as well as the United Nations Framework Convention on Climate Change 2005-2015 "Building Resilience of Nations and Societies to Disasters" inviting and designating each country as responsible to create National Platform and Disaster Risk Reduction Strategy.

Natural and man-made disasters affect the lives of European citizens, the European economy and the environment every year. Whether of natural or man-made origin, disasters are becoming increasingly extreme and complex, exacerbated by the impacts of climate change in our interlinked economies, and are by nature irrespective of national borders.

Strategic and planning documents in the field of the prevention and management of natural and man-made disasters The international document setting out the guidelines for disaster risk reduction is the UN Framework for Action 2005-2015: Building Resilience of Nations and Societies to Disasters.

The main acts of the European Union in the field of disaster risk reduction are:

Decision No 1313/2013 / EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism.

Directive 2007/60 / EC on the assessment and management of flood risks.

Directive 96/82 / EC on the control of major-accident hazards involving dangerous substances.

Directive 2008/114 / EC on the identification and designation of European Critical Infrastructures and the assessment of the need to improve their protection.

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The EU CBRN Action Plan is also of great importance for strengthening CBRN security in the EU Member States.

Other important documents for a balanced approach of the EU and the principle of Member States' national responsibility for disaster prevention are the Council Conclusions on "A Community Framework for Disaster Prevention in the EU", "Towards Strengthening the EU Response to Disasters: the Role Civil protection and humanitarian aid ", " Civil protection awareness raising "and" Developing and introducing early warning systems in the EU ".

With regard to risk assessment, Council Conclusions on the further development of EU Risk Assessment on Disaster Management and the Council Conclusions on Integrated Flood Management within the EU, adopted in 2011, play an important role. And the European Commission Working Paper "Guidance on Risk Assessment and Mapping for Disaster Management".

An important international document for the Southeast Europe region is the Memorandum of Understanding on the DPPI SEE Institutional Framework of the South East Europe Disaster Preparedness and Prevention Initiative (DPPI SEE) as well as the Biennial Strategy and Action Plan of the Initiative. These documents aim for an effective regional approach to disaster and emergency management by analysing the current situation, capabilities, challenges and opportunities to expand regional cooperation on preparedness and prevention.

The main legislative acts in the Republic of Bulgaria, which regulate the reduction of the risk of disasters, are:

- Disaster Protection Act.
- Ministry of the Interior Act.
- Water Act.
- Territorial Planning Act.
- Waste Management Act.
- The Law on the Safe Use of Nuclear Energy.
- The Law on the Protection of the Environment.
- The Administration Act.

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- The Health and Safety at Work Act.
- Law on Defence and Armed Forces.
- The Law on the National Emergency Call System with a single European number 112.
- Health Act.
- Local Self-Government and Local Administration Act and the secondary legislation to them.

#### Responsible disaster risk reduction structures

The responsible structures for disaster risk reduction are all ministries and agencies, regional administrations, municipalities, emergency medical care centers, other medical and healthcare establishments, which have obligations to carry out the preventive activities under Art. 6 of the Disaster Protection Act and on the implementation of disaster protection plans, including legal entities and sole traders, voluntary formations and armed forces formations.

The General Directorate for Fire Safety and Protection of the MoI is a national specialized structure for fire safety, rescue and disaster protection under the MoI Act and the Disaster Protection Act.

#### Analysis of strategic and planning documents in the field of prevention and management of natural and man-made disasters

The lack of a strategic framework to reduce risk of disaster risk is one of the major challenges. Actions are currently not strategic, as their approach is mainly based on the development of projects and programs that are often uncoordinated and inappropriate. Currently available data on disasters is scattered, limited and difficult to compare - various criteria are used, such as the number of victims, the amount of damage, and the number of events occurring over a given period of time. The data on the physical and economic consequences of disasters are, at best, indicative.

Insufficient public awareness of disaster risk reduction principles, targets and actions, as well as on response activities before, during and after disasters, is also a serious challenge. The measures implemented so far have been

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inconsistent and limited in scope, with the issue being underestimated and the provision of resources.

Coordination between the responsible institutions is not at the required level, and the frequent changes in the regulatory framework in the sector, the lack of effective coherence, consistency and continuity of the responsible structures, have a negative impact on the reduction of the risk of disasters. This leads to a decrease in administrative capacity at national, district, municipal and sectoral levels, as well as loss of expertise and past experience.

Poor disaster response structures are poorly developed, insufficient capacity is being used by NGOs, there are gaps in disaster recovery mechanisms, and an Internet-based information platform is not developed.

Preliminary flood risk assessment for each basin management area has been completed. Significant past and significant potential future floods have been identified. Based on the preliminary flood risk assessment, areas with a significant potential flood risk are identified and identified, focusing on the mapping of the threat and risk of floods and the development of flood risk management plans.

With the implementation of the requirements of the Floods Directive in the Water Act, conditions for long-term planning of flood risk management have been established. Following the risk assessment, a program of actions and measures to reduce the risk of floods with a focus on prevention, protection and preparedness, including flood forecasts and early warning systems, will be developed.

In addition, the specialized geo-protection structures (currently state-owned companies with MRD principal), which existed in 1972, provide expert assistance in disaster and emergency situations related to geo-protection activities.

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However, activities related to disaster risk reduction and climate change are not integrated, but there is also a lack of a national climate change adaptation strategy.

In the Republic of Bulgaria there is a functioning Unified Rescue System (ESS) for disaster protection that provides the opportunity for a gradual attraction of forces and resources in line with the development of the disaster. The Consultative Council to assist the Council of Ministers in forming the state policy on disaster protection is a functioning national disaster risk reduction platform. The National Disaster Protection Program and annual plans for its implementation are being implemented.

An important document in the field of disaster risk reduction is the National Disaster Protection Plan, which is developed under the aegis of the Minister of the Interior with the participation of representatives of ministries, municipalities, local authorities and non-governmental organizations.

In addition, disaster protection law provides for planning of disaster-protection activities in accordance with the country's governance model at national, district, municipal, and field level.

The main documents for organizing most of these activities are the relevant departmental, district and municipal disaster protection plans and the emergency plans of the sites, which are periodically updated.

By introducing the requirements of the European Critical Infrastructure Directive into the Disaster Protection Act, the disaster-protection legislation for critical infrastructure sites has been developed. The regulations on the order and the way to establish the National Critical Infrastructure (NCI) and their sites, and to identify and designate European Critical Infrastructures (ECIs), risk assessment for them and measures to improve their protection are adopted. Start work on establishing, conducting risk assessment, planning and implementing measures to reduce the vulnerability of ECI and NCI sites in order to improve their protection.

A National Early Warning and Disclosure System for Disasters and Air Disclosure has been introduced. It consists of an early warning and disclosure system for the executive bodies and the constituent parts of the Joint Saving System and the Early Warning and Disclosure System.

The Interdepartmental Commission for Reconstruction and Assistance to the Council of Ministers takes decisions to fund activities to prevent, mitigate and overcome the consequences of disasters.

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It is necessary to adopt the legal basis for a sustainable and effective system of training the population and the executive bodies for disaster action.

The insufficient provision of financial resources for disaster risk reduction activities is the reason for the depleted exploitation resource of the early warning and public disclosure system.

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## **ANALYSIS OF THE LEGAL FRAMEWORK AND ORGANIZATIONAL STRUCTURE ON MUNICIPAL AND REGIONAL LEVEL WITH REGARD TO NATURAL AND MANMADE DISASTER MANAGEMENT AND PREVENTION**

Basic strategic objective and priorities for the prevention and management of natural and man-made disasters.

Taking into account the current situation, as well as the weaknesses and the strengths in the field of disaster risk reduction in the Republic of Bulgaria, the following main strategic goal can be formulated: Prevent and / or reduce adverse impacts on human health, socio-economic activity, environment and cultural heritage in Bulgaria as a result of natural and man-made disasters.

To achieve the goal, the following priorities for action can be defined:

Priority I. Developing a sustainable national policy and providing a robust legal and institutional framework to reduce the risk of disasters.

Activities:

1. Develop a sustainable national, regional and municipal disaster risk reduction policy

The existence of a political commitment is key to addressing the issues of DRR at all levels. In the last few years, disaster risk reduction policy has been highly appreciated and identified as the top priority by many countries in the world, including ours, thus reducing the risk and increasing the resilience of the country and society in Disasters. Expanding the Advisory Council to assist the Council of Ministers in shaping the state policy on disaster protection and turning it into an actively acting National Disaster Risk Reduction Platform will contribute to strengthening the coordination between the different sectors and improving the Dialogue at all levels between the respective structures.

The development of the National Strategy for Adaptation to Climate Change will also be important for the sustainability of DRR policy.

2. Improving the existing legal framework for disaster risk reduction

Disaster risk reduction should be based on an integrated approach at all levels of governance in line with existing sectoral legislation. In order to achieve long-term disaster sustainability, a thorough review of existing legislation, the

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improvement of disaster risk reduction mechanisms, the adoption of the necessary legislative changes in existing legislation or the adoption of new legislation in the field of planning And actions to reduce the consequences of disasters.

It is imperative to review and, if necessary, make changes in the relevant disaster risk reduction sectors by clearly defining the structure and interfaces of disaster management bodies, including in the field of health. To adopt a new approach to pre-hospital and hospital emergency care by regulating the rights and obligations of non-medical and medical actors in rescue activities.

Clarifying roles and responsibilities for disaster risk reduction at national, district, municipal and field level will improve cooperation and communication between all sectors, state and municipal authorities, non-governmental organizations, business representatives and all stakeholders.

Carrying out human resources and disaster risk reduction capacities at all levels will support the development and implementation of policies, programs, laws and regulations.

### 3. Development of institutional capacity to identify and implement disaster risk reduction actions in all critical sectors

Disaster risk reduction requires a solid institutional basis, which needs to be strengthened by building capacity, good governance, promoting appropriate policies, facilitating the flow of information and adopting effective coordination mechanisms.

It is necessary to recognize the importance and specificities of local self-government, the decentralization of responsibilities and resources to reduce the risk of disasters to relevant local authorities where appropriate.

Assess existing human resources for disaster risk reduction at all levels and develop capacity building plans and programs in institutions to meet future challenges. Promoting local communities' involvement in disaster risk reduction activities and the development of volunteering will significantly contribute to achieving the goals.

Combine existing healthcare establishments in a unified disaster response system at national and regional level by establishing standard national algorithms for clinical behavior and maintaining minimum stocks of medical material.



Priority II. Identification, assessment and monitoring of disaster risks. Expand and maintain effective national forecasting, monitoring, early warning and disaster disclosure systems.

**Activities:**

1. Identifying, analyzing and assessing the risks of disasters at national, regional, municipal and local level

Knowledge of the adverse phenomena, especially in the context of increasing volatility and climate instability, enables a better understanding of risks, their management, increasing preparedness for response and minimizing harmful impacts.

It is necessary to make a detailed inventory of existing sources of information related to disasters, as well as to set up an information system for collection of disaster data. This will make it possible to compare the available data and provide a basis for assessing the possibilities for better use of information by different users.

Information on the economic consequences of disasters is also important because it provides an opportunity to assess the costs and benefits of various disaster prevention measures.

The description of risk scenarios and multiple risk scenarios in risk assessment, map creation and risk scenario assessment, data collection and analysis, aggregation and dissemination of statistics on disasters, damages and losses are possible through the use of international, national and local mechanisms. Risk assessment can help promote prevention and preparedness by improving capacity analysis and capability planning, and by using appropriate geographic information systems and modeling systems and systems. Hazard mapping can identify areas that are vulnerable to specific risks, which is an important tool for planning authorities and provides essential information to the public.

To reduce the risk, it is necessary to periodically develop and update maps of major types of risks that, along with the information they provide, are widely disseminated and made publicly available to relevant professionals, society and communities at risk.

For flood risk management, plans will be developed to focus on prevention, protection and preparedness, including flood forecasts and early warning systems.

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To take into account the likely impacts of climate change on flood risk, it is foreseen to review and update the ex ante risk assessment, risk maps and plans.

2. Planning, building, expanding and maintaining monitoring, forecasting, early warning and disclosure systems

Reducing the risk of disasters and promoting a culture of sustainability is done not only by informing about the dangers, physical, social and economic risks, but also through the effective use of the monitoring, forecasting, early warning and disclosure systems. An important step in this is to provide maintenance in the operational regime of NIMG and NIGG - BAS systems for forecasting, monitoring and early warnings of dangerous phenomena of hydrometeorological and seismic origin and development, improvement and staffing of the National Seismological Network and the National System for Strong Earth movements, as well as improving the process of collecting, processing and exchanging disaster risk data from the Center for Aerospace Surveillance at the MoI.

It is also necessary to promote the process of building local notification systems (SBOs) on the territory of the whole country in sites representing constructions I, II and III category under Art. 137 of the Spatial Development Act, or carrying out an activity that creates a danger for a disaster. It is also necessary to integrate the built-up SLS into the National Early Warning and Disclosure Disaster Disclosure System (NDPRD) and to realize an opportunity to publicize the population, focusing on sites with massive attendance in Sofia and in the major regional cities in the country.

Use the TETRA standard digital radio communication system as a transmission medium between the NSRF components and increase cross-border real-time data exchange, forecasts and warnings by supporting the development of regional data sharing / sharing protocols / protocols.

Establish a National Water Management Center in real time. The Center will provide real-time information on the state of surface water throughout the country - meteorological forecasts of NIMH - BAS, information from the water level monitoring system of hydrometric stations of the rivers and the water level of the dams.

It is necessary to develop a National Early Detection and Disclosure System for forest fires.

The centralized collection, processing and analysis of the information will allow for effective decision-making and management of all tasks involved in

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managing and operating state structures - MoEW, BD, NIMH - BAS, Dams and Cascades Enterprise, TsDU, Irrigation Systems EAD, the Executive Agency "Exploration and Maintenance of the Danube River".

The development and upgrading of the National Operational Center and the District Operational Centers for Disaster Protection and their integration through the establishment of basic emergency response infrastructures will contribute to effective coordination, cooperation and disaster management, both at national level and with the coordination centers The EU, NATO and the UN and will enable rapid and accurate preparation of comprehensive and accurate analyzes and exchanges of experience and good practices.

The development of a National System for Monitoring, Early Detection and Disclosure of Forest Fires will help their early detection and rapid suppression.

Priority III. Building a disaster protection culture at all levels of government and in society through the use of experience, training, research and innovation

Activities:

1. Development and use of research and innovation

Attracting scientific potential in predicting and preventing or mitigating the consequences of disasters and training the population will lead to improved dialogue and cooperation between scientific communities and those working in the field of assessment, management and disaster risk reduction.

Strengthening the role of the science and expert group in the Consultative Council to support the work of the Council of Ministers in shaping the state policy on disaster protection will allow for improved coordination in prioritizing research and avoiding duplication of activities.

It is also necessary to extend the technical and scientific possibilities for the development and implementation of studies, studies and models for risk and impact assessment of disasters at all levels of governance.

To this end, easy and systematic access to the results of research into disaster prevention should be ensured and a database of experts with expertise developed.

2. Building a culture of disaster protection through the use of education and training

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It is essential to reduce risk and increase the readiness of the population to include the main principles, objectives and actions related to disaster risk reduction in the training programs at all possible levels and to ensure equal access.

Education and training should be complex in nature, encompassing the efforts of competent responsible institutions with the guarantee of acquiring the necessary knowledge and skills. Considerable attention should be paid to the application of modern methods of transferring knowledge and skills, encouraging the implementation of disaster risk and disaster preparedness programs in the secondary and tertiary education system. It is necessary to develop disaster risk reduction training programs targeting planning specialists, local authorities and district administrations.

It will also be essential to use all possible formal and informal channels of information and reach it to children and young people.

It is necessary to develop and adopt programs for conducting specialized trainings and simulation exercises and exercises for different hazards for settlements, significant public infrastructure projects, including schools, hospitals, etc., taking into account the role of volunteers in strengthening the local Capacity to deal with disasters.

### **3. Raising awareness and enhancing population participation in disaster risk reduction activities**

One way to raise public awareness is by disseminating disaster risk information not only between the relevant governing bodies but also among the population.

It is also essential to make effective use of the media, the Internet and all existing means of communication.

To promote citizen participation in disaster risk reduction activities, it is necessary to provide readily understandable and accessible information on disaster risk and the protection of the population, and to adopt specific policies, networking, strategic management of the voluntary resources, allocation of roles and Responsibilities and delegation of power and resources.

To strengthen the linkages between disaster-relief experts, managers, planning experts across sectors and regions, it is necessary to foster partnerships between stakeholders, including those working to reduce the socio-economic dimensions



of disaster risk through Creating networks and platforms for exchange of information and good practices.

Priority IV. Reduce significant risk factors and increase preparedness for effective disaster response at all levels of governance.

Activities:

1. Efficient management of natural resources and development of socio-economic practices

The risk of adverse events is increasing due to a number of factors: increasing population density in a given territory and urbanization, inefficient management, lack of social and financial security, poor health and disability of part of the population, inefficient management of natural resources, Environment, increasing climate change, and the fact that more and more people live in areas at risk today. Therefore, the sustainable use and management of natural resources should be promoted through the development of risk mitigation actions, including structural measures and integrated water resource management.

It is necessary to establish a responsible, planned, open and predictable policy in the field of water resources in accordance with the National Strategy for Water Sector Management and Development in the Republic of Bulgaria adopted by the Council of Ministers and approved by the National Assembly in 2012 and the Action Plan for The National Strategy for Management and Development of the Water Sector in the Republic of Bulgaria in a Short-Term (2013-2015), Mid-term (2016-2021) and Long-Term (2022-2037) Perspective.

Improve the implementation of social assistance mechanisms in disaster-stricken children, adults, the disabled and other socially vulnerable population groups.

It is also necessary to develop financial risk sharing mechanisms, in particular insurance and post-disaster recovery.

2. Plan and implement Critical Infrastructure Protection (CI) measures

The European Union and its Member States have taken a number of policy initiatives in the area of critical infrastructure protection over the past few years. Joint efforts to ensure protection and enhance their resilience continue and should be deepened. By ensuring a high level of protection of critical and European critical infrastructures in the Member States and enhancing their

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protection by planning and implementing measures to reduce vulnerability, the consequences of loss of vital services for society as a whole can be reduced.

The protection of critical infrastructures is also an essential element of the Bulgarian security policy. Due to the increasing number of disasters, the implementation of an active and systematic approach to reduce risk factors and ensure the necessary level of protection of national and European critical infrastructures is essential.

The establishment of an information system for collecting and processing data on already established KIs and their sites at national and district level will help to identify KI protection measures and activities. Particularly important are data on disaster protection of strategic sites and activities that are relevant to national security.

Enhanced cooperation, by sharing knowledge, good practice and information on critical infrastructure protection, as well as the development of the cross-cutting approach, will provide a high level of protection and will significantly increase the sustainability of CIs.

### 3. Disaster risk management measures

Performing engineering and geological surveys, zoning, investment projects, creation and maintenance of fortification, drainage and coastguard facilities to reduce and prevent the risk of spreading of landslides, abrasive and erosion processes will help to build sustainability and reduce risk in the affected areas.

The inclusion of disaster risk assessments in spatial planning and management of densely populated areas subject to a high risk of disasters and the implementation of harm-avoidance measures will contribute to increasing the sustainability of the built environment and other infrastructure.

Implementation of an emergency program adopted by the Government to protect the population from floods as well as other measures for the implementation of flood risk management plans, including rehabilitation of protective dykes, inland waterway corrections following positive assessment of environmental legislation and facilities. Drainage and retention dams are part of the measures that will be included in the flood risk management plans and will significantly reduce the risk.

Disaster risk reporting in planning procedures for major infrastructure projects and the inclusion of design, adoption and implementation criteria, as well as development and promotion of the use of monitoring tools and tools to reduce disaster risk in the context of spatial planning Policy and agrarian planning.

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Standard operating procedures should be developed to ensure enhanced and more effective cooperation between stakeholders at the local level in terms of complex risk.

To reduce risk factors, practice should be set up to monitor and prepare annual reports at national, district, municipal and site levels as well as periodic review and renewal of disaster protection plans focusing on risk areas and critical site protection from critical Infrastructures.

#### **4. Improvement of preparedness for effective response and disaster recovery**

Activities related to readiness are naturally tied to response and recovery activities. In this sense, they provide a good opportunity to ensure coherence between disaster management activities by developing disaster risk reduction capacities at national, regional, municipal and sectoral levels (human resources, technical capabilities, financial resources, etc.). The development of disaster risk reduction plans and programs at all levels provides for the building of long-term capabilities, including forecasts, in line with available budgetary means.

The development and integration of volunteering at all levels is possible only by creating a favorable environment for training and realization, clarifying its economic and social significance for society, improving legal protection and giving recognition to volunteers.

Updating the Guidelines and preparing guidelines for planning, conducting and evaluating disaster relief drills and exercises, as well as their annual implementation at the local, regional, and national level, will significantly contribute to disaster risk reduction.

An important prerequisite for the effective response to disasters is the dialogue, coordination and exchange of information between the components of the Joint Rescue System, which requires the upgrade of the National Operational Center of the Ministry of Interior as an element of ESS management and comprehensive Providing the National Headquarters for Disaster Protection.

The functioning of the National Medical Coordination Center (NMCC) of the Ministry of Health should be restored and information counseling systems to optimize disaster medical care should be implemented with preliminary risk assessment and adequate planning of medical activities.

To create opportunities to promote cooperation and interaction in the field of disaster management as well as the exchange of good practice on disaster relief through public-private partnerships.



A review and refinement of disaster recovery and reconstruction practices and standards at local, regional and national level should be undertaken. Disaster funds should also be encouraged to finance response, preparedness and recovery measures.

#### **5. Encourage international cooperation to reduce the risk of disasters**

The establishment of effective national disaster risk reduction systems and their coordination and cooperation with international organizations is one of the main approaches to ensuring national and international security, stability and sustainable development.

Increasing the national capabilities of the Republic of Bulgaria to respond to disasters by creating new civil protection modules will contribute to improving the preparedness and capacity for EU and NATO response and will strengthen European mutual assistance within the framework of the EU Civil Protection Mechanism.

The Republic of Bulgaria should intensify its regional neighborhood and cooperation policy in support of the European and Euro-Atlantic integration of the countries of South Eastern Europe and the Black Sea region in the field of disaster protection through the exchange of information and good practices and to extend operational cooperation through the national Point of contact with the operational centers of the EU, NATO, the United Nations and the Member States.

The Diplomatic Service of the Republic of Bulgaria shall actively coordinate international action and cooperation in the field of disaster risk reduction by interacting with the competent authorities of the state authorities, the ministries, the departments and other bodies of the executive power and the local self-government.

#### **Monitoring and evaluation**

Monitoring of the management of disaster risk reduction processes will contribute to transparency in its implementation and implementation as well as to the assessment of the objectives and priorities set out therein.

Monitoring will be carried out each year on the basis of self-assessment by all responsible structures.

Self-assessment will be done for each priority based on the following metrics:

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Priority I

1. Existence of municipal policy and legal framework for disaster risk reduction.
2. Provided adequate resources to implement disaster risk reduction plans and activities of all administrative structures at the local level.

Priority II

1. Risk assessment for major hazards.
2. Availability of databases of major hazards.
3. Functioning systems for forecasting, monitoring, early warning and disaster reporting.
4. Established municipal water management center.
5. State of the Critical Infrastructure Protection of Objects.

Priority III

1. Availability of accessible and up-to-date information at all levels of the municipality.
2. Developed and updated programs and materials for training and trainings with municipal officials.
3. Methods developed for disaster risk assessment studies and methodologies.
4. Existing tools for informing the public and stimulating the development of a disaster prevention culture.

Priority IV

1. Existence of policies for spatial planning in order to reduce the risk of disasters.
2. Disaster risk reduction measures implemented.
3. Available up-to-date disaster protection plans at all levels and regular drills and exercises to test them.

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4. Provided financial reserves and mechanisms to support effective response and recovery as needed.

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## **BASELINE ASSESSMENT OF THE INSTITUTIONAL CAPACITY, FUNCTIONS AND COORDINATION RELATED TO NATURAL AND MANMADE DISASTER MANAGEMENT AND PREVENTION**

Baseline assessment of institutional capacity is of fundamental importance for the policies and strategies that will be developed and implemented as a basis for prevention and management of natural and man-made disasters.

It is necessary to assess the state of affairs in terms of reduction and termination, for future poor functioning, as a result of natural and man-made disasters, incl. And river systems, incl. The achievement of good ecological chemical status of the waters. In addition, strategic issues with regard to reducing impacts from floods, planning and subsequently applying safeguards should also be addressed. As a consequence, agricultural policy, river transport, urban development, emergency management and especially nature conservation should be used and integrated in the development of policies and strategies for protection against natural disasters. Consequently, in order to implement the strategies aimed at preventing natural disasters in different directions, it is necessary to coordinate actions at local, regional and international level. In addition, policies and recommendations on their development in terms of sustainable protection and protection against natural and man-made disasters have to meet a wide range of indicators and criteria:

- Appropriate steps need to be taken to create a sound legal, administrative and economic framework in which each of the sectors, public, private and voluntary, can contribute to the prevention of natural and man-made disasters, and in particular floods, The safety of hydrotechnical facilities and the reduction of the harmful effects of floods on human health and property as well as on water and terrestrial ecosystems.
- The implementation of integrated water management measures for the entire catchment area has priority over flood risk management in particular.
- The development and impact of major human activities for flood protection and protection should be carefully considered and evaluated. All major activities that may have a negative impact on human health or on the quality and quantity of water, biological communities, landscape, climatic factors, architectural and archaeological heritage, and their respective ratios, shall be subject to an impact assessment Environmental impact assessment (EIA), and

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with a significant impact on construction works - permitting procedures, the EIA should also be applied internationally for activities with a potential cross-border effect.

- In the design and spatial planning required by the development of the populated areas as well as by the development of the agriculture, it is necessary to take into account the requirements for the prevention and limitation of the effect of the floods, which necessarily include the provision of natural water holding areas. Growth and development need to be monitored in areas that are seriously threatened by floods.
- When defining these frameworks it is important and necessary to take into account local issues and needs as well as local decision-making mechanisms.
- It is necessary to improve the existing information policy which includes the exchange of information in case of emergency and the promotion of public participation in decision-making.

In order to successfully implement indicators in joint co-ordination actions in line with flood protection policies, there is a need for joint action and exchange of experience between cross-border river basins and EU countries as well as beyond. In this regard, it is necessary to emphasize that collecting information, documentation, and also learning from the experience of different countries and applying good practices is necessary for all aspects of disaster prevention, preparedness and management. Flood risk management plans should therefore be based on the results of the joint action and the knowledge of the adopted risk management policies. Minimizing flood risk will also depend on flood protection measures taken across the river catchment area, going beyond regional and national boundaries. Risk reduction can be achieved through joint action by all relevant institutions on regional planning, transport, urban development, river control, hydrology and meteorology. It is imperative that the existing flood protection plans are re-reviewed to assess how effective they are at this stage and those that are in the development phase to be completed. The minimization of flood risk will largely depend on risk analysis and flood forecasting at international level due to the fact that this is one of the important components of flood prevention. The implementation of such policies and actions will help to promote solidarity between upstream and downstream rivers at international level.

Several initiatives at global and European level, for example, are in place at this stage; The Helsinki Convention on the Conservation and Use of International



Rivers and Lakes (Helsinki, 1992) where legal instruments and joint programs for the following river basins were prepared and adopted: the Rhine, the Danube, the Elbe, the Oder. The "Guidance on Sustainable Flood Protection", developed and adopted by UNECE, has been held, second and third water forums have been held. The next initiative is the "Sustainable Development Summit" (Johannesburg, 2002). A Declaration of Intent on Actions for Integrated River Delta Management (Kyoto 2003) has been adopted. As a result of these mechanisms and instruments, new international treaties have been created and the existing ones have been modified and updated with the expansion of risk management actions related to water. As a result, international commissions have been set up for some of the rivers: Rhine, Moez, Moselle and Saar, Tisza, Danube, Oder and Elbe, and flood protection plans have been established. In this regard, several international joint action projects have been set up, focusing on the sustainable reduction of flood risks related to natural resources. As such international projects, we can mention IRMA, the REGION, the flood control forum on the Tisza basin, the North Atlantic Joint North Atlantic Treaty, the Carpathian Preparation and Accountability Project, the UNESCO International Hydrological Program and others. At this stage, the EU's role is mainly to provide financial instruments (European Solidarity Fund for Disasters), Structural Funds, LIFE and Research. Another point for the EU's role is that the European Commission is developing and implementing horizontal actions on prevention, preparedness and responsibility for natural and man-made hazards. In this regard, we will emphasize that an important issue is emerging and that, in the future, it is necessary to achieve greater absorption of EU funds on the financing of risk analysis projects for flood protection and forecasting within the the support of the Rural Development Council, INTEREG III B and INTEREG IV.

In the context of the above, regarding the joint and coordinating actions under UNECE leadership, the following principles need to be respected:

1. Establishment of joint bodies. Governments and local governments need to set up joint bodies, on the principle and basis of international river commissions. It is necessary to require those authorities to include prevention of flood protection in their activities and, in this respect, to develop or update good management practices relating to their activities. These joint bodies need to comply with the following requirements:

- To outline a long-term flood protection and protection strategy covering the entire transboundary river basin and its water systems.

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- To include in the strategy the following main objectives to meet the minimum requirements: reducing the risk to human health and property; Reducing the scale of disasters; Building consciousness in people; Building new or improving old forecasting and early warning systems.
- Outline the priorities of all structural and environmental measures to protect, control and reduce the harmful effects of floods; To carry out a risk analysis of the existing flood extent and human activities throughout the river basin; To determine the adequacy of existing flood prevention and control measures.
- Plan the achievement of long-term objectives for flood risk management; To develop plans to identify priorities for measures, including both their value and their impact. Priorities need to be ranked according to their importance and the timetable for implementation.

2. Information provision. The need to improve information provision is at the basis of control and the reduction of the risk of floods, accidents of hydrotechnical facilities and other hazards. To this end, it is necessary to conclude agreements between the parties for the exchange of information, including the following parameters:

- Informing without delay each side down the river about the likelihood of flooding, critical water levels or ice clusters.
- Timely and accurate forecasting of water levels, swelling and the risk of ice clusters.
- Exactly informing the public about the institutions responsible for information provision on floods or natural disasters of another nature.

Therefore, when the early warning, information and forecasts are timely circulated between the parties along the river course following the agreed procedures, they will help minimize risk and manage it in flood and accident protection. As a result, the received and processed information should be disseminated to the public through the media, the Internet and other relevant information tools. Also, this information should include what actions the population should take in the disaster that has occurred.

3. Emergency situations and mutual assistance. To minimize risk and manage it in emergency situations, it is necessary to plan the following activities.

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- Need to produce quality national local flood emergency plans. Responsible government structures must have the capacity to respond to disasters in a timely manner in accordance with emergency plans.
- If necessary, trainings are organized and conducted.
- In terms of countries situated along river banks, when negotiating mutual assistance procedures in emergency situations, it is necessary to specify the formalities for crossing the border with the responsible structures and authorities during the disaster.

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## **NATURAL AND MANMADE DISASTER RISK ASSESSMENT**

General threats and terminology related to the risk of natural and man-made disasters

The most serious impacts of natural and man-made disasters tend to increase, both in terms of number and magnitude of the effect, cause human casualties, environmental and economic damage. The vulnerability to such disasters is increasing, due to the impacts of environmental and climate change as well as urban and industrial development.

Every year, disasters at European, regional, national levels are the cause of billions of euros of humanitarian damage, which affects economic security, the growth of the economy and the well-being of citizens. Disasters can have cross-border implications and potentially endanger whole areas in neighboring countries. Consequently, threats and the risk of natural and man-made disasters are an important area for citizens, businesses, municipalities, governments in the European Union and in Europe.

Man-made disasters such as industrial accidents involving hazardous substances can also have large-scale and transboundary impacts (eg oil spill in the Gulf of Mexico in 2010, the release of red sludge from alumina production in Ajka, Hungary in 2011 Y). In addition, natural disasters and catastrophes, such as lightning, low temperatures or earthquakes, may give rise to man-made disasters such as disasters, spills, or fires (for example, the Fukushima nuclear disaster in 2011). Such major disasters of natural disasters may arise more frequently due to the increase in extreme natural phenomena and the increased complexity and interdependence of industrial systems.

There is a clear political awareness in the European Union of the need to develop and implement a strong disaster risk management policy aimed at building resilience to disasters and mitigating the worst effects both within the Union and in its external action.

At international level, sustainability and disaster risk reduction are included as a key topic at international summits, such as the Rio Summit on Sustainable Development in 2012 or the G20 Disaster Risk Management And the development of a methodological framework designed to help governments develop more effective disaster risk management strategies, in particular financial strategies based on enhanced risk assessment and risk financing. In addition, the process towards a new international framework for disaster risk

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reduction (the Hyogo Framework for Action after 2015) places more emphasis on the aspects of disaster risk management financing and the economic cost of disasters.

It is necessary to manage the risks of natural disasters, which requires better management of exposure to natural disasters through urban planning and land use planning. Disaster management policy should include prevention, resilience and reduction of individual vulnerability, as well as the strengthening of ecosystems.

Disaster risk management can help promote economic development and prosperity in the long, medium and short term:

- In the long term, investing in risk management has a high rate of return and contributes to sustainable economic development at national, regional, municipal level;
- In the medium term, improved assessment and disaster resilience help focus on the structural sustainability of public and private finance as well as improving macroeconomic, regional municipal stability by reducing the harmful impact of natural and man-made disasters on growth and public and Private budgets;
- In the short term, investing in risk management can be a means of accelerating growth and jobs (new technologies, research and development, sustainable buildings and infrastructure, innovative financial instruments).

Risk assessment (including exposure and vulnerability analysis) is an important and central step in informing disaster risk management and in the process of planning and allocating financial resources. Multi-risk assessments that take into account the interactions between possible hazards and vulnerability would also help address related risks and follow-up effects.

Building sustainability is a long-term effort that needs to be integrated into national policies and planning, including regional cooperation: sustainability strategies are also part of the development process and contribute to different long-term policies, in particular to adapt to climate change And food security.

Man-made disasters, including industrial hazards, are also changing not only because of technological advances but also because of the changing risks of natural disasters. Natural disasters and accidents can lead to accidents. Natural and man-made disasters can either be combined or can get worse.



Ecologically dangerous events are generators of harmful impacts on the urban, natural and socio-economic environment. Ecologically dangerous events, sets of phenomena, actions and effects on environmental systems. It is necessary, in defining them, to take into account the disturbance that occurs when the boundaries of impacts of damaging factors are exceeded on heterogeneous objects in the environment, rather than being determined only by the amount of the damages incurred. It is imperative to take into account various and severe environmental consequences - pollution above the permissible levels of atmospheric air, water and soil, destruction of flora and fauna, agricultural crops, destruction of material objects, communications, interruption of economic activities and Infrastructure, causing health damage to the population, agricultural and wildlife, and other classes of organisms.

The identification of ecologically dangerous disaster events takes into account the contemporary concepts of terminology and research in the security of natural and urban ecosystems, conventions, regulations and international legal documents. The human, human communities in the context of the impact of ecologically dangerous events are defined as people in extreme situations. In this case, it is extremely extreme not only in the sense of maximum time and magnitude of damaging factors, endurance or tolerance, but also as any emerging event of exceeding the limit or limitations of harmful effects. Consequently, events resulting in situations of distress, extremes of environmental factors that create hazards and threats, risks and critical situations.

Extreme meanings of actions, circumstances, conditions, causes and consequences cannot be the subject of natural or modeling experiments with humans, but with objects regulated by international norms. The damage caused by extreme events is varied. It depends on their field of analysis, for example: physical, physiological, social, economic, political, environmental, etc. Compared to economic damage, physical damage is evident. Economic damages require more time to be determined. They may appear later and are harder to calculate. They lead to bankruptcy and business cessation. They penetrate from one another to management, production and services, security and safety. Their transitions are very difficult to identify. The graduation of economic effects and consequences depends on the nature of ecologically dangerous events and the economic situation of the communities. It is important to identify their differences, for which indicators of economic performance are used. In some cases, affected communities are prospering and developing. In



other cases, adverse economic impacts occur in analogy with the "domino effect" and extend to different levels and sites of the community.

Ecologically dangerous events in the context of the environment can be presented as a system. The analysis of the composition and structure of the ecologically hazardous environment - environment system shows that there are complex relationships between environmentally hazardous events and the urban, natural and socio - economic environment. These relationships are determined by the manifold direct and indirect, straight and inverse relationships. Urban environment is the main source of anthropogenic impacts.

People are already well aware that the main cause of disturbances and abnormal deviations in the functions of ecological systems are the anthropogenic factors. The generators of anthropogenic factors are modern production systems operating in a market environment. They, however, should not be regarded as merely a creator of the fabric. Manufacturing systems operate only with the participation of man in the environment of his own, inner environment. The operation of production systems located in the urban environment is linked to production creation. At the entrance, substances, energy and information are provided to perform the main function. Outputs produce and a set of environmentally hazardous environmental impact factors. The objects of the impacts are the natural, the urban environment itself and the socio-economic environment and, of course, the man, his being and well-being.

The effect of these in the natural environment is disruption of biogeocenosis interaction channels and impairment of their functional cycles. Conversely, the natural environment acts on its urban-atmospheric, water, soil, solar and cosmic radiation and other abiotic and biotic factors. Such impacts are also found on the socio-economic environment. Feedback is through legal, regulatory, economic, management, social, and other terms and functions.

Human-technology-environment systems are characterized by different features in modern conditions. Unlike natural systems, production systems are complex technogenic-social structures. The natural environment (atmosphere, hydrosphere, lithosphere, flora and fauna) and the urban environment, in particular urban ecological systems (residential areas, parks, communications, etc.), are affected by the anthropogenic factors that are generated by production systems. The reason is that production systems are located in the urban environment under certain market conditions.

Environmental hazards are identified with disasters as the causes of ecological hazards, which are named and interpreted differently in literature and practice.

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For example, many definitions can be found, such as: "extreme state", "usually irreparable state", "state of doom, ruin and destruction", "state of misery and calamity", "catastrophe", "Damage", "event with very severe consequences", "God's job", "astrological event".

Furthermore, it is argued that the main unresolved problems in defining disasters as ecologically dangerous events are as follows:

- 1) Extent of abnormality, unusualness and disaster situation.
- 2) Factors that affect their consequences and their characteristic properties.
- 3) Qualitative and quantitative characteristics and disaster transformations.
- 4) Selective definition of catastrophes and comparison with conventional disasters.

It is logical to assume that the definition of disasters must be in parallel with the hazards, risk and vulnerability of the objects of their effects. In this sense, it can be argued that: there are real moving, acting causes of disasters; In practice, the dangers and threats are transferred, generated by apparent and potential disasters, resulting in their transmission from one source to another; Disaster models are dynamic - this allows risk, dangers and consequences to be modeled in time and related to biological, physical or social environmental factors; Vulnerability determines the extent of disaster response; There is uncertainty in the decision-making process, which calls for deliberate management actions to reduce it; In disasters, there are connections between people and their behavior as a result of surprising unfavorable events; But the emergence of disasters can be predicted.

Appropriate qualitative and quantitative methods of analysis and assessment are therefore possible and necessary in the field of threats and the risk of natural and man-made disasters. They should, on the one hand, allow them to be applied in a wider range of situations and, on the other hand, model sufficiently plausibly the phenomena and processes of impact on heterogeneous sites in the environment. In this sense, it is necessary to systematise the factors of impacts from natural and technological disasters; Revealing similarities and differences; Evoking the occurrence of natural and technologically environmentally hazardous events for the long term; Implementing an adequate risk management process.

Risks and risk assessment of natural and man-made disasters

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There are numerous definitions and classifications of risk. This is because of a different meaning in the term "risk", which is associated with uncertainty, risk of loss, responsibility, unfavorable deviation from the desired condition, etc. For example, the risk is an event (kinship events) that detracts from an object to which the relevant risk relates, the risk of something uncertain, a denial of confidence, the possibility of occurrence of an event that may adversely affect the ability of a particular formal organization Or human community to achieve its goals.

The objective existence of risk is associated with such phenomena as earthquakes, floods, hurricanes, etc., which are beyond our control. However, there are many situations, such as industrial accidents, market behavior, ecological disasters, etc., where man is the main actor, and then the objective category of "risk" opposes the subjective category of "risk".

In modern science, culture, human communities, society, which makes risk also a generalizing and broad category such as sin, justice, value, meaning, etc.

Risk research involves revealing its essence, elements, properties and internal contradictions. It is necessary to study the reasons for the existence of the risk, the criteria for risk assessment, the relationship between the objective and the subjective aspects of the risk.

In the area of the risk of natural and man-made disasters, it is necessary to reveal identified risks and critical environmental situations, including in border areas. Therefore, a terminological study and analysis of the environmental risk properties is needed; Evocation of environmental risk characteristics; Situational risk modeling; Scenario risk modeling and criticisms in cross-border environmental security; Creating cross-border risk in the environmental security of border areas.

The risk classification system includes groups, categories, types, subspecies and risk varieties. For example, several guidelines have been identified in environmental risk definitions:

- related to dangerous and particularly dangerous natural, technical, technological and environmental phenomena and systems;
- in the context of national and international security;
- economic risks in an integration, regional, national municipal plan;
- mathematical, in the field of information uncertainty issues and the risk of decision making.

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In this sense, numerous definitions of environmental risk are possible, which allow to formulate common properties. Summing up the results of the survey, it can be argued that the risk has different basic properties, namely:

- risk is a multidimensional feature of future conditions;
- the risk is related to incidental events and processes;
- the occurrence of risk is a contingency event;
- the consequences of the events and the processes of risk are undesirable;
- the risk arises as a result of interactions between nature, man and technique, in particular the economic, market environment created by it;
- the risk is the possibility of a positive result in uncertainty about the correctness of the actions - chance;
- risk is measurable.

On the basis of these different basic properties, it can be argued that:

- hazard is the principal objective component of risk;
- the risk is uncertain;
- subjectivity of risk;
- the risk is the accumulation of regressive potential;
- risk is a deviation from the management's security;
- risk is a social phenomenon;
- risk combines, combines formal-normative, psychological-cognitive and socio-cultural indicators.

In accordance with another classification of risks, they are basically two types: pure and speculative. Among the pure ones are natural-natural (earthquakes, floods, epidemics, etc.), environmental, political (military action, embargo, nationalization, strikes, etc.), transport and commercial.

Within this classification, environmental risk is a probability of changes or destruction of the environment as a result of a breach of the equilibrium society - nature. Environmental risks are defined at the end of the 20th century:

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- natural-ecological risk - is conditioned by the problems in the natural environment;
- techno-ecological risk - determined by the appearance and development of the technosphere - includes pollution resulting from economic activities and technogenic accidents (including all accidental accidents and incidents);
- socio-ecological risk - is conditioned by the social needs that arise in the society as a result of violation of the ecological norms in the formation of environmental environment;
- ecological-regulatory risk - due to non-compliance with environmental norms and laws in society;
- ecological and political risk - is determined by the environmental actions of the public, carried out by nature conservation organizations and foundations.

The risks to the pure, economic, civilian and infrastructure risks such as climatic, meteorological and hydrological, seismic, landslide, radiation, chemical, biological. In this context, the following possible events are identified in the national, municipal territory:

- disasters - earthquakes, floods, droughts, landslides and collapses, turbulent winds, sulfuric phenomena, dust storms, forest and field fires, hailstorms, snowstorms and icing, marine storm, outbreaks of contagious diseases and human, animal and plant epidemics;
- accidents - at hazardous sites operating with nuclear, radiation, explosive and fire-hazardous materials, industrial poisonous substances and toxic gases;
- accidents - space, aviation, rail, road transport, craft and deliberate action;
- terrorist acts and separate actions of organized crime that directly threaten the security of citizens and critical infrastructure.

#### Climatic, meteorological and hydrological risks

Information on the characteristics of our typical climatic phenomena is available in all climate, hydrological and agrometeorological reference books. From them you can get information about phenomena related to wind, intense precipitation and gravel, droughts, periods of extremely low and high air temperatures, icing of air lines, snow avalanches, etc.

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Another problem is the warming of the global climate over the last century, which has been clearly expressed over the last few years. The tendency to increase temperatures is partly also characteristic of winter. It is assumed that winter rainfall in Bulgaria will increase by the end of the current century, and rainfall during the warm half-year will decrease significantly.

Potential risk areas are agriculture and forestry, water resources and health care, eg:

- agricultural sites due to: expected rainfall reduction; Expected warming, shortening the actual vegetation period; The emergence of new diseases and pests;
- forestry sites due to: expected warming and drought; Increasing the risk of increasing forest fires;
- risks to human health: increasing the number of heat strokes; The occurrence of new diseases and / or changes in the frequency of others.

Changes in the global climate are determined by natural (terrestrial and space) and anthropogenic factors. According to the Kyoto Protocol and other global and strategic documents, measures must be taken to reduce greenhouse gas concentrations in the atmosphere.

#### Seismic risks

Of several dozen natural disasters that have always threatened mankind, earthquakes are the first. They are distinguished by: a relatively predictable or unpredictable manifestation; Short-term; Depth; Enormous intensity of earthquake energy; Regular or unusual repeatability of earthquake processes; Localization of seismic effects; Earthquake binding with heavily broken land areas.

These characteristics indicate that, unlike other natural risk processes, earthquakes have practically no response time. Consequently, in such an environment, the primary and only feasible response at the time of the disaster is the protection and rescue of the population. For the other elements of the anthropogenic activity - constructions, roads, bridges, energy facilities, water reservoirs and other engineering and technical facilities - the appropriate measures should be taken in advance.

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For earthquake risk assessment, seismic hazard and seismic risk are introduced.

Seismic hazard is the probability that the force of earth movements at a certain point on the ground may exceed a certain predicted value over a certain period of time. Earth movements are expressed by maximum acceleration, maximum speed or maximum movement of earthquake particles, as well as by macroseismic intensity.

Seismic risk is reflected in the expected losses (casualties, injuries, destructions, etc.) as a result of the earthquake event. It is a function of seismic gambling and so-called. Vulnerability. It is determined by the extent of the loss of one or more elements of the risk (population, buildings, infrastructure, etc.) caused by a certain earth movement with a given amplitude.

Bulgaria is located in the eastern part of the Balkan Peninsula, which is the most active European seismic unit within the Alpine-Himalayan earthquake zone. The area of the Balkans declines by force and mostly by the frequency of earthquakes of separate nodes in the Pacific Earthquake belt. The major part of the earthquakes in the Bulgarian lands have shallow outbreaks - up to 60 km deep. This greatly increases their effect on the Earth's surface.

This in turn leads to significant undesirable consequences of seismic impacts at high population density and high building density, even in relatively weak earthquakes (magnitude 6.0). Earthquakes with medium and large magnitude can become a major cause of human casualties, destruction of buildings, industrial sites, road, hydrotechnical and electrical equipment, fires, explosions, epidemics, environmental disasters, etc.

#### **Landslide risks**

Landslides are unevenly spatially distributed throughout the country, with distinct areas of increased concentration. Several regions of the country with a higher concentration of landslide phenomena can be separated. Such are the Pre-Balkan, the Sofia and Pernich valleys and others. An urgent task is the further development of mapping and cadastre, reflecting essential elements of the landslide hazard in urbanized territories. This information will serve to make managerial decisions and develop preventive measures to reduce the consequences of landslide processes such as material losses, environmental consequences and the prevention (to a degree) of human casualties.

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### Radiation risks

Radiation situation on the territory of the country can be expected in the event of a major accident at the NPP, both on the Bulgarian territory and abroad, through the cross-border transfer of radioactive products.

Outside the RAWR - Novi Han, where all types of radioactive waste (RAW) that are obtained from the use of sources for ionizing radiation (IMI) in industry, agriculture, medical diagnostics and therapy and research outside of those generated by the NPP Kozloduy, there are about 150,000 sources of ionizing radiation (SIR). They store or use over 2,100 objects from industry, medicine, agriculture and science. All of them together with those in PRRAW - Novi Han - in general and separately, pose a potential danger to the health and life of the servicing staff and the population and are associated with dangerous consequences for the environment.

The risk of dealing with sources of ionizing radiation is related to the potential danger of: external exposure of people working with SIR; SAN scaling and environmental pollution; Internal exposure to SIR depletion and the incorporation of radionuclides by people working with IMI. Possible reasons for the risk of radiation contamination are: violation of the radiation safety rules; violation of safety policy rules; incompetence in dealing with SIR; human mistake; theft; terrorist activity.

### Chemical risks

Industrial accidents with the release of highly toxic substances can occur in many pharmaceutical, metallurgical, chemical, textile and petroleum industries. Oil pipelines and gas pipelines, which are potentially dangerous and explosive objects, pass through the country. In addition, there is a major flow of vehicles carrying highly toxic substances that, in the event of a disaster, create conditions for pollution of the environment and a threat to the life and health of the population. In the case of transport accidents and technological accidents at sites dealing with oil, petroleum products and natural gas and with the dissemination of mercury, pesticides and other chemicals, conditions for pollution and real danger to the population would be created.

### Biological risks

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In recent years, the risk of importing a number of particularly dangerous and exotic infections has increased, such as: West Nile Encephalitis; The pandemic spread of cholera in Africa, America and Asia; Ebola fever; Yellow fever; SARS, bird flu, etc.

The sites and areas where epidemic outbreaks or outbreaks may occur are determined by:

- presence of natural sources (reservoirs) and carriers of the infection (humans, animals, arthropods, etc.);
- use of biological agents (agents) for terrorist purposes.

Epidemic outbreaks and epidemics of infectious diseases with natural sources and carriers of the infection may occur in areas with active or latent natural outbreaks. When importing exotic infections, border areas and infrastructure sites (railway and bus stations) are the most risky of which diseases can spread to other territories and sites.

There is an opportunity for epidemic outbreaks and epidemics of diseases with natural sources and carriers that have been disseminated now or in the past. These may occur for the following reasons:

- deterioration of sanitary and hygienic conditions;
- low immunization coverage;
- favorable conditions for the irradiation of natural and the occurrence of anthropogenic outbreaks;
- in the case of natural and social disasters, creating the conditions for the implementation of the contamination;
- when using biological agents (agents) for terrorist purposes.

In the latter case, different areas and territories may be affected. The most vulnerable in this respect for terrorist acts are district centers and densely populated areas as well as important infrastructure sites.

The magnitude of the consequences assessed in human losses depends on several conditions:

- the type, virulence and quantity of biological agents,
- routes of application (aerosolized - by contaminated food and drink or drinking water, contact - when skin and mucous membranes come on, via live



transporters - arthropods, rodents and in medical manipulations using contaminated blood products and medications);

- the susceptibility of the macro-organism to the various causative agents;
- the possibilities of using personal protective equipment and providing medical care;
- early indication of biological agents.

Human losses can vary widely, ranging from a few to 80-100 percent.

### Critical Infrastructure

Critical Infrastructure includes: a system of facilities, services, information systems whose braking, malfunctioning or demolition would have a serious negative impact on the health and safety of the population, the environment, the national economy, etc.

The critical infrastructure sectors are:

- provision of drinking water;
- providing with vital food products;
- supply of fuels and fuel-lubricants;
- transport, including: road network; Shipping management system in coastal waters, rivers and in port areas; Air traffic management system;
- an energy system, including: system for production, transmission and distribution of electricity; A system for the transmission and distribution of natural gas;
- banking and financial services system;
- telecommunications;
- a crisis management system.

This system includes four major interoperable management systems for: crises of a traditional military nature; Terrorist acts and other public order and security breaches, with potentially significant negative consequences for the population, infrastructure and the environment; Natural disasters, accidents and catastrophes; Crises related to threatening the lives of Bulgarian citizens and Bulgarian property abroad.

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In addition to risk assessment, the Critical Infrastructure Protection Process may include various steps, such as:

- identification of critical infrastructure;
- assessing the vulnerability of a "critical infrastructure";
- an assessment of the interdependencies between the different critical infrastructure sectors and their subsystems and components;
- assessment of the real threats to the critical infrastructure;
- decision making (and follow-up) to improve and enhance the security of an infrastructure.

New risks:

The risk of terrorism

The term "terror" originates from the Latin word terror - fear and represents, according to the common belief, a threat to the fact that malicious people will fulfill (realize) any already existing risk or that a new risk will be created and realized, which will cause damage to a certain Person or organization. The threat of a terrorist act is already at the level of the daily event. It is essential that this risk is eliminated by:

- appropriately controlled access;
- security;
- vigilance;
- preventive work with the public.

The term "terrorism" arises in the Age of the French Revolution and is connected with various meaningful meanings of violence or a threat of violence to achieve certain goals - economic, political, religious, ideological. There have been numerous attempts to define terrorism, but so far there is no legitimate definition to be used as an analytical instrument. Article 1 1. For the purposes of this Convention, a "terrorist offense" shall mean any of the offenses which fall within the scope of a treaty listed in the Annex, as defined in the Annex to the Convention on the Prevention of Terrorism. This crime is defined in the relevant contract. "

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To prevent terrorism and to take measures against radicalization and recruitment of terrorists in the European Union, three key actions have been formulated: 1) providing communities with opportunities to prevent radicalization and recruitment of terrorists, 2) stopping terrorists' access to finance and materials And trace their transactions, and 3) protect transport.

Risks related to information communication technologies, defined as IT-risk

Apart from IT-risk, there are other names like: Internet risks, cybercrime or eBusiness risks, cyber-business or eBusiness. This is a new large area that affects business risks but also the public sector and civil society actors. In addition, ICT-related risks have their dimensions in other types of risks, such as terrorism-related issues.

Three key actions have been identified to increase the level of security for citizens and businesses in cyberspace in the European Union: 1) capacity building in the area of law enforcement and judiciary, 2) cooperation with the empowerment and protection of citizens, and 3) The capacity to deal with cyber attacks.

Identified varied and multiple risks are typically evaluated against two criteria: impact (if an event occurs) what is its impact on the living environment, and probability (probability of occurrence). (See Figure 1 and Figure 2.)

Fig. 1. Impact

<b>estimate</b>	<b>description</b>
<b>1</b>	<b>insignificant</b>
<b>3</b>	<b>small</b>
<b>5</b>	<b>moderate</b>
<b>7</b>	<b>substantive</b>
<b>9</b>	<b>devastating</b>

Fig. 2. Probability

estimate	description
1	not likely
3	rare
5	possible
7	likely
9	almost certain

In management practice, it is considered important to determine the threshold of tolerance of risk. This means putting a distinction between the risks that require immediate action on the part of the subjects of governance and risks that can be monitored. In determining the risk tolerance threshold, the following interpretation of risk priorities may be used.

By this logic four priorities are formed:

Priority 1 - Critical risks: these are the risks of both factors rated to be greater than or equal to 3. Typically, this is a group of risks that require immediate attention and detailed consideration of risk management activities.

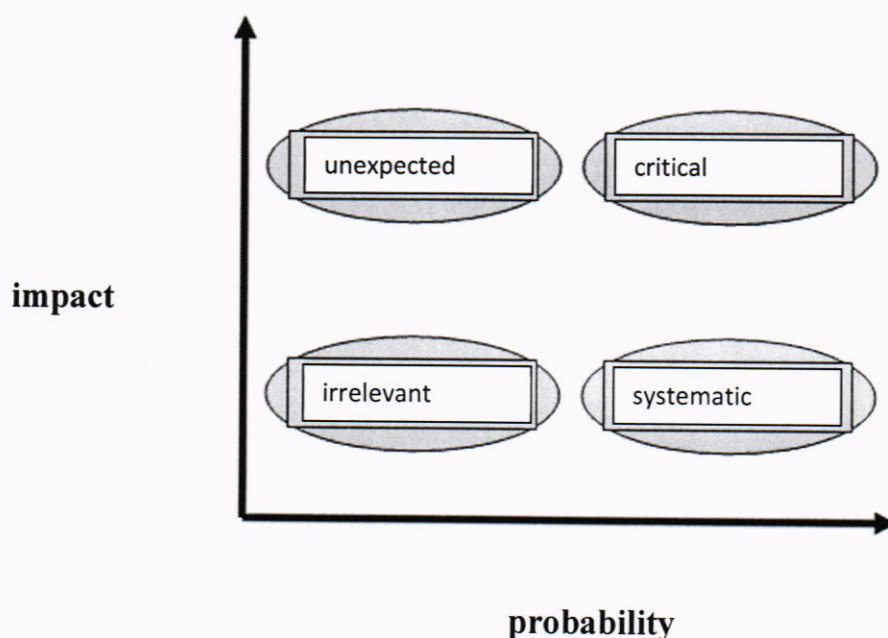
Priority 2 - Unforeseen risks: These risks need to be controlled prior to "systemic risks" as their impact may be significant, although the probability of occurrence is less than the critical risks. Such precautions are usually taken (eg a fire).

Priority 3 - Systemic risks: These risks are very likely to occur, but their impact is relatively low. Such precautions are usually taken for precautionary measures. Rather, the cumulative effect (for example, a series of small problems with a high cumulative impact or systematic violation) should be considered.

Priority 4 - Irrelevant Risks: Here are the risks where both factors are rated below 3. Based on the risk tolerance level, these risks attract attention or not. This depends on the resources available and the requirements of the stakeholders. See Fig. 3.)



Fig.3 Risk priorities



Environmental risk is a quantitative measure of environmental hazards. It focuses on the negative effects in a probable aspect. There are quantitative and qualitative indicators. Quantitative are numerical values reflecting the possibility of the emergence and development of the hazard. There are two features: a) The occurrence of a disability that is the basis for linking to the severity of the damage from an ecologically dangerous event. The assessment can be made objectively or hypothetically. It is necessary to draw up hazard scenarios and to accept the statistical functions of distribution of the occurrence of events and damages; B) Uncertainty of occurrence of dangerous events. They are subjected to discrete distributions, and the uncertainty of occurrence is determined by the dispersion and the coefficient of variation. Ecologically dangerous events refer to the group of rare events, but due to the sometimes extreme damage to the environment, it is imperative to carefully assess and publicize the practice.

Analysis of risk factors with respect to geostrategic location and climatic conditions of the Republic of Bulgaria

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The geostrategic location of the Republic of Bulgaria provides favorable conditions for busy road, rail, air and water transport. In this situation, international routes providing transport links with Central Europe, the Middle East, the Baltic countries and Russia occupy an important place. This, in turn, is a prerequisite for risk in relation to transport accidents involving the transport of dangerous goods, which in turn can cause environmental pollution and endanger the lives and health of people.

In order to ensure our energy security on the territory of the country, the transport routes and communications for the supply of oil and gas, telecommunication connections and routes are being developed and developed.

Improving and strengthening market relations between the countries of the region and Central Europe leads to an increase in international traffic of commercial and industrial goods and other raw materials. In this respect, critical infrastructure and commodity objects need to be under enhanced control to prevent crisis situations in their operation. On the other hand, the natural waterways along the Danube and the Black Sea, which connect us with Central Europe and the Black Sea Basin, are also a risk factor due to the fact that large quantities of petroleum products are transported and that the occurrence of accidents is very likely to occur. Major oil spills that can cause severe environmental consequences.

Therefore, there is a need to improve the protection of critical infrastructure elements at all levels due to the fact that they are a high risk risk factor and under the conditions of a complex criminogenic situation there is a probability of deliberately causing accidents resulting from terrorist acts and Diversions on pipelines and pipelines, power transmission grid and other critical infrastructure components. At the same time, the activity of the industrial enterprises in the country is directly related to the operation of sites in the energy, chemical, refinery, metallurgical and pharmaceutical industries. The activity of some of these sites is directly related to the processing of explosive, highly flammable, combustible and highly toxic substances. Therefore, these products and raw materials are characterized by a high risk of processing as they can cause industrial accidents and fires with the release of strong toxic substances, which can also lead to severe environmental consequences and endanger the lives and health of People. We also need to pay attention to the risk factor at the risk of a

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crisis and disruption of the technological process due to the violation of technological discipline and non-observance of the safety measures at work as well as the passive position of some managers. In case of natural disasters and industrial accidents.

The conclusion is that all these circumstances will affect the vulnerability and risk status of objects and elements of critical infrastructure where, as a result of unfavorable weather conditions, pollutant emissions can cause environmental pollution, likely to occur. And of a cross-border nature.

As an example, we can point to a possible violation of the Kozloduy NPP safety standards, which could lead to a possible accident, accompanied by the release of radioactive emissions into the environment, resulting in a complex radiation environment. In the event of adverse meteorological conditions and failure to control the processes of discharges of radioactive emissions from the damaged reactor, radioactive contamination of the environment may involve an area in a 50 km area, where many settlements will fall. Possible scenarios with the likelihood of cross-border transmission of radioactive emissions.

Bulgaria's climatic characteristics can also be identified as a risk factor. This feature can be defined as a set of factors for potential earthquakes, snowfalls, snowstorms, hailstorms, dust storms, floods, landslides and fires.

The territory of Bulgaria is characterized by high seismic activity. Our country falls into one of the intensive areas of the Mediterranean seismic belt and is under the influence of internal and external for our country seismic regions with an expected magnitude to eight degrees on the Richter scale. As a result of the geological and seismic surveys, the territory of Bulgaria is divided into three seismic regions: Northeastern, Srednogorski and Rila - Rhodope.

The north-eastern seismic area includes: Gornooryahovskata, Shabla and Danube seismic zones.

The Srednogorsk seismic area includes: the Sofia, Marichen, Tungzhen and Sub-Balkan seismic zones.

The Rila-Rhodope seismic area includes: the Strum, the Local and the Western Rhodope seismic zones.



There are seismically active areas that are out of the country - in Romania, Turkey, Macedonia, Greece, which are characterized by high intensity and are also likely to have strong impacts on our territory.

Regarding the climatic conditions, our country is located in the moderate continental climate zone, which is characterized by high temperature differences, which are likely to cause severe winter weather conditions causing freezing, snowing and heavy snowfall, and during the spring and summer season the weather conditions are characterized by strong winds and hailstorms, resulting in serious damage to crops. The sharp amplitudes in the atmosphere during the winter season will cause snowfalls accompanied by strong winds, resulting in snowfalls on the main roads of the Republican road network. It is likely that difficulties arise in the operation and maintenance of the railway infrastructure. It is not excluded that in such a severe meteorological situation, there will be overspill of overhead lines and open communication facilities.

By analyzing the weather and climate conditions in the country, it is necessary to note that there is a high probability of floods during the winter and spring season, which can be caused by fast-pacing snow and heavy spring rains. Hence there is a possibility of significant floods not only along the Danube River where ice can occur, but also on rivers of local and regional importance resulting from a rise in the water level of the river. Depending on the intensity and the durability of precipitation, floods are likely to occur both in the upper and lower reaches of the rivers, where the big dams, whose areas include settlements, important communications facilities and agricultural lands, are also potentially dangerous. As a result of snow-melting and intense rainfall there is a high probability of activating landslides and abrasive areas that are in the active stage and can pose a threat to the settlements.

The typical for the summer period is the occurrence of large forest and Polish fires. The occurrence of fires may be the result of thunderstorms, working with malfunctioning agricultural and transport machinery and mechanization, and failure to meet technological safety requirements. In many cases, intentional fires occur as well, resulting in a complex environmental situation and a decision to declare a disaster on the part of the Managing Authorities.

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## **RISKS IDENTIFICATION THROUGH INTERVIEWS AND QUESTIONNAIRES**

### Identification of potential risks

Over the last decade the Republic of Bulgaria has been affected by a large number of high-intensity disasters, which is why our country falls into the areas characterized by high risk in this sphere.

Hazard identification is a lengthy process not only focused on current but also on time. It is important to take into account the historical development of hazards, as incidents that have occurred or have been avoided can contribute to analyzing the historical repetition of some natural or man-made disasters.

### Seismic hazard

Seismic impacts are characterized by their unpredictability, especially in terms of time, which causes large-scale negative consequences - victims and injuries to the population, material damage, etc. From seismological point of view, Bulgaria is located in the Alps-Himalayan seismic belt, characterized by high seismicity.

The issue of actual forecasting - the simultaneous determination of the strength, location and timing of the earthquake, is still unambiguous on a global scale. The seismic hazard can not be controlled, but seismic risk can be managed and reduced.

The reduction of seismic risk is mainly due to improvement of the spatial planning and the engineering-technical design, construction and operation of the constructions.

### Danger from floods

Floods are common natural disasters on the territory of the Republic of Bulgaria. They can cause huge damage as they affect urban territories, productive agricultural land and forest massifs. In accordance with the scientific classification for this type of hazards and in accordance with the Water Act, the floods can be natural and technogenic - caused by other influences, such as damage to a hydrotechnical facility, which can lead to an accident, and to prevent critical situations in Hydrotechnical facility.

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Floods that have passed in recent years have shown that the flood risk reduction activities that have been applied so far are not sufficient and a policy of comprehensive flood risk management should be pursued under the conditions of "coexistence" with them. Such an integrated approach - flood risk assessment and management, is enshrined in the European Floods Directive, which was adopted in 2007.

Its requirements have been introduced into the national legislation through the Water Act in 2010. The reduction of the flood risk is done mainly through the construction of hydrotechnical protection systems and facilities, good spatial planning of the territory and last but not least - increasing preparedness for prevention or Reducing the negative effects of floods through preventive measures, population training, adequate preparation, planning of rescue activities, etc. It is also necessary to regularly clean the riverbeds and maintain them under conditions of natural conductivity.

#### **Danger of landslides**

The territory of the Republic of Bulgaria is characterized by a high degree of landslide and erosion-abrasion activity. Large scale landslides, collapses, abrasion and other unfavorable geodynamic processes have been manifested, which act steadily and destructively, are difficult to predict and suddenly occur. With their unpredictability they threaten the security of settlements, resorts, residential, business and industrial buildings, the technical infrastructure.

The Ministry of Regional Development has the obligation to carry out activities for the registration and monitoring of the landslide areas in the country and the regions with erosion and abrasion processes along the Danube and Black Sea coasts as preventive measures through state geo-protection companies formed on Territorial principle - "Geoashtistata" Ltd. - Varna, Pleven and Pernik.

In order to prevent and limit the impact of landslide processes, erosion and abrasion, the Ministry of Regional Development has been assigned and developed a National Program 2007 - 2015 for the strengthening of landslides, protection of the Danube and Black Sea coast from erosion and abrasion and protection of the technical infrastructure And settlements from landslide processes.

#### **Danger of forest fires**

Forest fires are one of the main hazards to the composition, structure and functioning of forest ecosystems. Climate change over the last decade has led to

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increased incidence of forest fires and the size of the affected areas. Ice-ice, ice, snow-snow and snow, incl. In forest areas, lead to ecological catastrophes, affecting tens and hundreds of thousands of acres of forest land.

In the conditions of global warming and drought, it is logical to expect an increase in the fire hazard in forest ecosystems.

The anthropogenic nature of over 90% of fires necessitates the categorization of forests near urbanized areas as high-risk. At present, there are about three-quarters of the forests in Bulgaria.

For this reason, fire and forest fire management should be designed and implemented similarly to activities in the Mediterranean countries (Greece, France, Spain, Portugal, etc.), where the whole or most of the territory is considered to be heavily endangered From fires.

Danger of meteorological phenomena such as drought, strong winds and winds, heavy snowfalls, snow storms, ice and extreme temperatures.

Drought is a consequence of reducing precipitation over a long period of time. Often a number of meteorological elements such as high temperatures, strong winds and low relative humidity coexist with drought, which makes this phenomenon very pronounced. A number of drought indicators in the atmosphere and on the ground have to be monitored operationally to determine the extent of drought and its impact.

The negative trend observed in the multi-annual rainfall changes in many regions of Bulgaria shows that there is a high probability of occurrence of frequent and intense droughts in the country. This requires that the risk of drought is investigated and analyzed and that measures are developed and implemented to reduce and possibly eliminate it. As a basis for developing such measures and improving drought risk management, research on current climate change and rainfall and air temperature regimes, EU legislation in this area, as well as the measures foreseen in the management plans The four river basins related to adaptation to climate change, water scarcity and droughts. Over the last few years there has been an increase in the number of settlements with seasonal or year-round water regime. The Ministry of Regional Development has developed a program for the construction and rehabilitation of dams for drinking needs.

Strong winds are not a common phenomenon for the country. The average annual number of days with strong winds in the non-mountainous part of the country is between 5 and 20 days. The hurricane wind, which exceeds the wind



load in the sizing of buildings and objects, is a rare phenomenon, but it nevertheless happens.

Strong winds in the country may lead to power cuts, road blocking, infrastructure disturbances and a threat to people's lives and property.

The specificity of the continental climate is also the basis of possible snowfalls. Snow blizzards and frosts are a common phenomenon for our country, especially in its northeastern part. They are typical for December and January, but can be seen during the rest of the winter months.

Snow storms and icy conditions cause air traffic disruption, road blocking, and may put many lives at risk. Snowfalls can be disastrous mainly in settlements and cause not only traffic blocking, interruption of electricity and water supply, but also medical insurance and food supply to the population.

Low temperatures are the reason for the icing of power lines and other open communication lines. Annually, about 50-60% of the country is affected by snowfall and ice.

Extreme temperatures can also be attributed to natural disasters. On the one hand, these are anomalously low temperatures in the spring, autumn and winter periods - frosts, on the other - anomalously high temperatures in the summer - heat. In addition to impeding the day-to-day activities of the person, extreme heat causes various accidents and crisis situations. In case of excessive heating the rail rails deform and soften the asphalt road surfaces, which can lead to derailment of trains and other serious problems. Failure of power lines leads to serious disturbances and damage to the power grid. Critical situations may include a number of proceedings. Extreme heat can also make human sacrifices.

**Danger from nuclear or radiation accidents**

Despite stringent safety measures for the operation of different types of nuclear reactors and the availability of automated control, control and protection systems, the practice of operating them indicates that situations may arise which are accompanied by an emergency release of radioactive substances into the environment.

Radioactive contamination could occur both in an emergency situation at the Kozloduy NPP, with the release of radionuclides into the environment as well as in case of transboundary radioactive contamination due to a nuclear or radiation accident in other countries, as well as in incidents with Means of transport (cars, railway wagons, craft and aircraft) carrying radioactive materials.

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In recent years, there has also been a worrying trend of increasing attempts to exploit radioactive sources for terrorist purposes. In this respect, as well as the implementation of the EU Action Plan to Strengthen CBRN Anti-Terrorism Threats of 2009, an inter-ministerial working group of experts Republic of Bulgaria.

Danger of industrial accidents and accidents when transporting hazardous substances, materials and waste.

On the territory of the Republic of Bulgaria there are companies classified and registered as "high-risk enterprises" as well as "low-risk enterprises", according to the requirements of the Environmental Protection Act and the Ordinance for the Prevention of Major Accidents with Hazardous Substances and to mitigate their consequences. These are mainly enterprises of the chemical, explosive manufacturing and trade, petroleum and petroleum products and gas industries. Major industrial accidents often have severe consequences for the population and the environment, and the impact may also affect territories beyond national borders. This underlines the need to improve the existing control of the risks of major industrial accidents involving hazardous substances and taking appropriate preventive action to ensure a high level of protection in the Republic of Bulgaria for the population and the environment.

#### Danger of biological contamination

The existing production and economic conditions, the structure of agriculture, the geographical location of the country, the deteriorated international epizootic and epiphythic situation, the trade, the import and the export with live animals, products of animal and plant origin are conditions for occurrence of outbreaks of biological contamination.

The boundaries of the biological focus are determined by specialized anti-epidemic and anti-epizootic formations of the competent veterinary authorities, which under certain conditions act in a synchronized way, and those of the affected plants are determined by the phytosanitary inspectors of the Bulgarian Food Safety Agency.

#### Danger of hailstorms

As an atmospheric phenomenon, hailstorms cause sensitive losses in agrarian production. At the same time, they cause great material damage to the building

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stock and the outbuildings, and often lead to human sacrifices. The most dangerous are urban storms, where the damage to crops in the field is 50 to 100%.

Buildings, in their extreme manifestations as separate or series of storms and as events accumulated in one season, are disastrous in nature and can significantly affect the economic performance of agriculture and hence of the national economy. The average annual damage amounts to about 100 million leva and sometimes reaches up to 200 million leva.



## DEVELOPMENT OF RMC CARDS

Tabulated summary of RMC cards for the hazards typical of the municipalities of Svoge and Merozhina.

The identification, documentation and sorting of the indicated risks were performed on the basis of a combination of techniques from two working groups of experts of CSED Bulgaria. The techniques used are: nominal group technique and delphi technique. The results are compiled and summarized in the RMC cards below, as each of the risks is discussed in detail. For each of the risks, the following assumptions were made: Assumptions analysis and data misstatement; Assessment according to impact and risk scenarios; Sorting; Ranging; Documentation.

### a) Flooding risk

#### RMC CARD 1

Responsibilities		Resources
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probabilty</b> <b>4</b> <b>Scale (1-10)</b>	<b>Risk factors</b> River banks Larger areas	<b>Possible disaster scale</b> <b>5</b> <b>Measurments (1-10)</b>
<b>Timing</b> Early during spring Heavy rainfalls	<b>Frequency</b> Multinle nature and low intensiv manifestation risk	<b>Category</b> General

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**b) Fire risk**

**RMC CARD 2**

<b>Responsibilities</b>		<b>Resources</b>
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probabilty</b> <b>4</b> <b>Scale (1-10)</b>	<b>Risk factors</b> Forested areas Fields	<b>Possible disaster scale</b> <b>5</b> <b>Measurments (1-10)</b>
<b>Timing</b> Summer Drought periods Human and industry	<b>Frequency</b> Multinle nature and low intensiv manifestation risk	<b>Category</b> General

**c) Biological risk**

**RMC CARD 3**

<b>Responsibilities</b>		<b>Resources</b>
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probabilty</b> <b>1</b> <b>Scale (1-10)</b>	<b>Risk factors</b> Forested areas Animal farms Transport Tourism	<b>Possible disaster scale</b> <b>5</b> <b>Measurments (1-10)</b>
<b>Timing</b> Year-round	<b>Frequency</b> Multinle nature and low frequency risk	<b>Category</b> General

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	manifestation	
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**d) terrorism risk**

**RMC CARD 4**

<b>Responsibilities</b>		<b>Resources</b>
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probabilty</b> <b>3</b> <b>Scale (1-10)</b>	<b>Risk factors</b> Industrial areas Urban areas Transport centers	<b>Possible disaster scale</b> <b>4</b> <b>Measurments (1-10)</b>
<b>Timing</b> Year-round	<b>Frequency</b> Multinle nature and low intensitv manifestation risk	<b>Category</b> General

**e) Nuclear risk**

**RMC CARD 5**

<b>Responsibilities</b>		<b>Resources</b>
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probabilty</b> <b>1</b> <b>Scale (1-10)</b>	<b>Risk factors</b> Entire territory	<b>Possible disaster scale</b> <b>7</b> <b>Measurments (1-10)</b>
<b>Timing</b>	<b>Frequency</b>	<b>Category</b>

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Year-round	Multiple nature and low intensity manifestation risk	General
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f) Seismic risk

RMC CARD 6

Responsibilities		Resources
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
Probability 2 Scale (1-10)	Risk factors Entire territory	Possible disaster scale 7 Measurements (1-10)
Timing Year-round	Frequency Multiple nature and low intensity manifestation risk	Category General

g) Severe storm risk

RMC CARD 7

Responsibilities		Resources
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
Probability 2 Scale (1-10)	Risk factors Entire territory	Possible disaster scale 4 Measurements (1-10)
Timing	Frequency Multiple nature and low	Category

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Year-round	intensity manifestation	risk	General
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**h) Contamination risk**

**RMC CARD 8**

<b>Responsibilities</b>		<b>Resources</b>
Relevant Municipal and National authorities, businesses and general population		Specialized equipment Trained professionals Volunteers
<b>Probability</b> 2 <b>Scale (1-10)</b>	<b>Risk factors</b> Industrial zones Urban areas	<b>Possible disaster scale</b> <b>5</b> <b>Measurements (1-10)</b>
<b>Timing</b> Year-round	<b>Frequency</b> Multiple nature and low intensity manifestation risk	<b>Category</b> General

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## **RISK RANGING AND DEVELOPMENT OF RISK ELIMINATION AND MITIGATION STRATEGIES**

Based on the developed risk theory and its analysis, the emergence of an "image" of risk is outlined. It identifies four main categories: danger, risk, criticality and security.

Danger is defined as an opportunity or probability of something bad happening, some misfortune or misfortune, as analysts say that this interpretation does not reveal the causes and sources, the structure, the patterns of occurrence, and the consequences of the impacts.

Danger is compared to the functioning of natural and social systems. Dangers are likely to be caused by climatic, geological, economic and other risky situations affecting our environment, as well as the impact on settlements. For example, when analyzing risk, many authors unite around the understanding that hazards are due to extreme natural events that pose a risk to the population and the places that cause accidents and misfortunes in people's lives. Reducing their actions is the basis for protecting people.

In analyzing and interpreting the definitions of danger, it is suggested that they do not fully disclose the likelihood of the hazard occurring. That is why it is necessary to deepen the research on the identification of processes related to the occurrence of the hazard, which is a necessary prerequisite for taking action to prevent or limit the probability of occurrence of danger to a degree that satisfies the safety of the objects or people. This objective fact helps confirm the thesis that critical events are an objective realization of the particular danger or combination of hazards. Hence, their prevention is related to the prevention of hazards.

The structure and classification of hazards depends on the model study, such as the model based on the integrated hazard. The specific in defining the structure of hazards is that the pattern is a combination of phenomena, actions and effects. In developing such a model, detailed risk analysis and reporting will be carried out in a sequence that will give us a clear vision of the objective and subjective aspects of the hazards, with sequential analysis being advantageous.

We need to take into account that the probability of danger is not a single event, but a set of causes, circumstances, conditions, processes that have a random and variable in time nature. In this sense, we can assert that the probable causes of danger can be both regular and occasional. Typical of hazard disclosure is that

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they need to be identified and to determine the adverse effects on objects as a result of a possible accident or disaster. Consequently, it is necessary to analyze the hazards of "potentially dangerous objects".

"Potentially Dangerous Objects" can be attributed to those where due to their function and purpose, size and service area, with repeated deviations from normal operation, damage or destruction, are likely to cause large-scale damage to the health of the population, Death, material damage or disruption of vital socio-economic activities.

Starting from the terminology and the requirements for "potentially dangerous objects," we can compare them with the so-called "risk objects". Risky sites are those that store, use, process and use highly toxic, pathogenic, radioactive, fire and explosive substances and substances as raw materials, or carry out activities in potentially dangerous conditions for workers, employees, the population and the environment."

If we define the risk as a possible hazard, accidental action, an act of success, a possible loss, we will notice that there are two sides in the definition. The first is that there is a potentially dangerous condition for performing the particular activity or action, and the second is that the activity or action will be carried out under conditions of uncertainty. As a result, ambiguity can also be applied to achieve the desired goal, by carrying out the necessary actions to achieve a probability that can provide protection for dangers.

There are six systems for the specificity of risk.

Thesis 1: Danger is fundamental, objective, consisting of the structure of risk. In this thesis, it is confirmed that to a great extent the risk by nature of its occurrence and its development contributes to awareness of the danger and is of a natural and social nature. Therefore, it can be argued that the danger in its nature is potential and real, and depending on the accepted models, it can be analyzed and evaluated. L. Paccester and R. Eccles outline the risk as a three component model in which the first component is the hazard, the second is the uncertainty, and the third component is the possibility. By analyzing the risk and its characteristics, the authors consider that the risk should not be minimized, optimized.

Subjectivity is the second fundamental thesis. The emphasis in the second thesis is whether to accept or not to take the risk, which will depend on the definition of optimality in the emergence and development of a given situation. To validate the thesis we will quote W. Lys, according to which "When a new



situation arises or changes occur in routine or semi-routine tasks, making decisions is complicated." Therefore, it is imperative to introduce the term "acceptable risk". "Acceptable risk" is an action where people who take a risk or reject certain risk actions when taking a decision. Under the acceptable risk, it is necessary to analyze the processes that result in the acceptance or non-acceptance of the risk, analyzing the factors that will influence the decision making.

The relationship of risk to uncertainty is the third proposition that advocates. According to the probability theory, there is a dependence on the risk of uncertainty, ie. In determining the likelihood of success or failure, uncertainty is the result of probability and quantitative assessment of the consequences, as a result of which acceptance of risk is a confirmation of uncertainty.

The fourth argument is that "risk is a progressive potential". Progressive potential means:

Non-recoverable damages, impaired properties, qualities, material cultural values. Appearance of new properties, qualities, materials, technologies, increased threat, unclear degrees of danger in the future.

Reducing the level of security by spreading new weapons, new unfamiliar technologies and their existing physical, chemical and biological principles of action.

Increasing and intensifying environmental threats with increasing industrial potential. The main properties of risk in the context of this approach are normality, irreversibility, increasing size, quality uncertainty.

The fifth thesis on the essence of risk comes down to the basis that characterizes its manifestation - "the risk is a deviation from the security of governance." This thesis was developed and formulated by V. Vatykin, and V. Gamsa. The authors examine the risk with regard to its formalization, which will use the results of its analysis in the decision-making process. In this case, the risk is assessed with the probability of an error in the choice of one or several aggregated solutions, and consequently, in order to take account of the degree of risk equivalent to the possible error of choice, it is proposed to introduce a new indicator called "Conflict of Choice of Decisions. "

The sixth thesis focuses on the nature and the properties of the risk. The risk is characterized as a "social phenomenon"; The risk is also seen as a reality, and as a social element, as a result of which the risk is identified with the danger. In this sense, it is claimed that the risk is the product of the likelihood of



occurrence and the severity of the consequences that the risk represents a completely objective and real result, which is expressed in a potential danger as well as already identified damages caused by the specific danger, which can be calculated regardless of the social environment, its specificity and its heterogeneity.

At present, the so-called " Sociological risk theory in which risk-related issues are developed. According to her, the better explanation and analysis of the causes of the risk, the more adequate it is to perceive it, and that it should not be ignored and consequently the rejection of the reports of the emergence and development of the risk as this will contribute not only to a lack of understanding but also to its perception.

The theory of risk information suggests that the idea of explaining damage and losses through communications is entirely within the sphere of government and the policies that the state applies in social terms. Applying adequate and effective policies is also the basis on which sociological risk analysis is conducted. In this context, researcher N. Luman argued, "The future depends on the decisions taken in the present and on the uncorrected decisions adopted in the past."

"The risk is the likelihood of a specific adverse effect on the life and health of humans or on the environment within a given period of time and / or under certain conditions." This definition allows us to confirm the conclusion that the risk depends on the probability we can define as an act of causing damage that is different for the various objects on which it affects, but there will also be a different weight of the damage received. Therefore, it is necessary to collect and analyze information about past damages, as a result of which an estimate of the damage that may occur in the event of natural disasters and accidents is made.

Four main areas of risk analysis and definition can be identified.

The first strand is related to the study and analysis of hazardous and especially dangerous natural, technical, technological, environmental phenomena and processes. This strand is related to multi-year and serious surveys, the results of which are directly related to the security of people and the environment.

The second strand is directly related to international and national security. In this direction, emphasis is placed on the risk structure, which includes four elements:

1. Danger.

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2. Making a decision.
3. Hope to achieve the goal.
4. Measurability, which is characterized by computability - a statement consistent with the metrological principle of indirect measurements.

The third strand is related to economic development as well as to insurance risks.

The mathematical direction is the fourth. By its nature and peculiarities, it is related to the issues of information uncertainty and decision-making.

The likelihood of risk rating also depends on the classifications that characterize it and they must meet the following characteristics:

- the name of the risk element;
- the area of risk;
- the risk cycle;
- component;
- a list of base modules of the taxonomic element;
- multiple base modules needed to format the elements.

This model was developed and analyzed by P. Munnev and in this connection he analyzes the definition of "integral risk", noting that he uses risk as a criterion of danger, criticality and security. As a result, risk by nature and genesis needs to be considered as "site risk" and "subject risk". It is necessary to consider the two strands in parallel because of a number of factors and reasons that contribute to the emergence and development of "danger". As a result, the "site risk" will determine the hazard and its development, along with the factors that will identify it as hazardous, and also consider the factors contributing to safety. Due to the fact that both risks need to be considered in parallel, the "subject's risk" will help to determine the protection against dangers. This is conditioned by reasons created and developed by man, as it is also a factor in determining the risk through its action or inaction. In this sense, man can help to create a danger, and at the same time he can also be subject to the action of the factors determining the occurrence of dangers.

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**Accident.** In the broadest sense, the term "accident" is a large-scale accident involving roads, highways and air traffic, fire, demolition of hydrotechnical facilities, incidents caused by activity at sea, nuclear incidents and other environmental and industrial accidents caused by human activity.

**Crisis.** The crisis is such a sudden or expected change in the established state of life caused by human activities, events or natural phenomena where the life, health and property of large groups of people, the territory, the environment, the cultural and material values of Country. "

The implementation of adequate risk assessment policies depends on the implementation and implementation of three main parameters in the preparation of the risk assessment:

1. The first parameter is "analysis". Risk analysis is the use of available information to identify dangerous events and identify risk elements.
2. Risk assessment is the second parameter. Risk assessment is a decision-making process on risk acceptability based on risk analysis, regulatory provisions, and factors such as technical achievements, the environment, psychological, economic and social aspects.
3. Risk assessment is the third parameter. Risk assessment is a process of risk analysis and assessment.

Risk analysis goes through three main phases and these are:

The first phase is the identification phase - in this phase, the description, the location and the nature of the site, as well as the activities it performs, the production and the equipment. The identification phase is fundamental to risk analysis because the results of site analysis are input data for risk assessment. The conclusion that can be made is that identification is a necessary condition for obtaining objective results.

The analysis and evaluation phase is the second phase of risk assessment. This phase determines the risk, and it is necessary here to determine the consequences of different scenarios. As a result, different theoretical variants are being developed for conflict sites or areas near them. Analysis and risk assessment can be done by two methods: a determined method when using the severity of consequences or damage; and a probabilistic method that is random in nature and uses frequencies of natural disasters (floods), accidents, or

accidents. When applying the determined method (mode), metric or non-metric variables are introduced, which can be:

- Internal hazards.
- Severity of consequences.
- Location.
- Text justification and information.

The probable method of analysis is based on the results of the quantitative indicators in the risk analysis, which are:

- Frequency of occurrence of hazards and critical events.
- Frequency of occurrence of incidents.
- Numerical historical data.
- Probability of harm.

The phase of arranging is the third phase. During this phase the summarized results obtained from the data processing in the analysis of the risk assessment during the first two phases are arranged, the results are arranged in descending gradation. Consequently, the results for the maximal or close conclusions are summarized, which determine the degree Of risk.

### Risk scale

In designing a strategy of behavior and in the process of making a specific decision, it is appropriate to highlight and outline certain risk areas (zones) depending on the level of possible (expected) losses in the economic and financial spheres.

The empirical risk scale, which can be used in its quantitative assessment (Table 1), has been developed and proposed on the basis of the summarized results of many authors' studies on the issues of quantitative risk assessment in the financial and economic activity of enterprises and organizations.

Making a decision is limited to the following stages:

First stage - preliminary decision making.

Pre-decision is made on the basis of the average arithmetic mean of the individual risk and the quality of the information separately for each operation of the decision algorithm.

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Second step - analysis of critical meanings.

At this stage of the assessment an analysis of those risk components whose significance exceeds the critical value is carried out. The need for this action is due to disclosure and identification of those constituents where the probability of risk is very high, which can lead to loss of funds and bankruptcy of the enterprise or organization.

Table 1

Risk magnitude from 1 to 0,1 (information quality)	Risk gradient	Characteristics
<b>Information quality is excellent: (0,9-1,0)</b>	Minimal	Minimal The likelihood of negative consequences is extremely low. There are no factors affecting the financial and economic parameters of the organization's activities. RESULT: A DECISION IS MADE.
<b>Information quality is very good: (0,8-0,9)</b>	Insignificant	Insignificant The probability of occurrence of negative consequences is small enough (insignificant). There are no factors affecting the financial and economic parameters of the organization's activities. RESULT: A DECISION IS MADE.
<b>The information quality is good: (0,7-0,8)</b>	Average	Average The likelihood of negative consequences is negligible. There are factors influencing negatively the financial and economic parameters of the organization's activity. RESULT: A DECISION IS MADE.
<b>The quality of information is medium: (0,5-0,7)</b>	High	High Significant likelihood of adverse effects occurring. Indeed, there are a limited number of factors that negatively affect the financial and economic parameters of the organization's activities. RESULT: A decision is taken after a DETAIL ANALYSIS aimed at minimizing and neutralizing the negative factors.

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<b>The quality of information is bad:</b> (0,5-0,3)	Maximum	Maximum High probability of negative consequences. Indeed, there are a significant number of factors that negatively affect the financial and economic parameters of the organization's activities. There is a risk of losing funds. RESULT: A decision is possible after a DETAILED ANALYSIS aimed at minimizing and neutralizing the negative factors.
<b>Information is not available:</b> (0,3-0,1)	Critical	Critical Very high (critical) likelihood of adverse effects occurring. There is a real number of factors that negatively affect the financial and economic parameters of the organization's activities. Real risk of losing funds and bankruptcy. RESULT: Decision is not made.

### Risk Management Strategy

The risk management strategy is the art of planning and guiding in the conditions of uncertainty of the environment, based on risk prediction and methods for its reduction. The strategy includes rules on which risk decisions and methods are taken, options for their choice. Efforts need to be focused on such options for solutions that do not contradict the adopted strategy. Once the set goal has been achieved, the strategy ceases to exist. The new goals prevent the development of a new strategy.

### Classification of risk management methods

When the organization decides to carry out a particular activity and assesses the possible risks, the most important problem is the use of methods and techniques for its management. The effectiveness of the risk management system depends on how successful the choice of one or the other instrument is.

Characterizing the pool of risk management tools, it is necessary to note that they have been created and perfected simultaneously with socio-economic development, moving from primitive forms of self-insurance in the form of reserves and reserves in case of unforeseen circumstances and reaching the

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developed flexible Market instruments that are pooled in the term hedge. In modern literature, a variety of risk management methods are considered, which can be divided into five main groups:

- 1) Deviation from risk (or avoidance of risk);
- 2) risk transfer (including insurance, hedging, relevant clauses in contracts, etc.);
- 3) localization of risk (creation of norms, removal of special subdivisions in which the risk activity is concentrated);
- 4) distribution (diversification, distribution of shares, etc.);
- 5) compensation (conducting additional research on the market, creation of reserves, etc.).

The presented classification emphasizes the basic rule that the choice of risk management method depends on its magnitude.

#### Basic strategic direction for risk mitigation

The aim of the main strategic directions for risk reduction is to create organizational prerequisites for effective, efficient and appropriate risk management at the municipal level by defining the criteria for assessing its effectiveness, the functional areas (field of application in which risks are identified ), Risk factors, organizational and functional structures, responsible persons, methods and mechanisms for implementing the risk management process.

The specific objectives of the Risk Management Strategy are:

- Building awareness and understanding of the risk management process at all levels of the administration.
- Building an organizational culture in terms of risk management and risk management responsibility at all levels of the administration.
- Covering all risks and their good management within the risk appetite of the administration.
- Implementation of risk management as part of the decision-making process. This involves linking the identified risks and control activities to the strategic

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and operational objectives of the administration as part of the multiannual and annual planning process.

- Achievement of compliance with the requirements of Art. 8 of the Financial Management and Control in Public Sector Act (FACS) for Annual Reporting on the Functioning, Adequacy, Efficiency and Effectiveness of Financial Management and Control Systems (FSCA).

The tasks of the Risk Management Strategy are:

- Strengthening of an approach for identifying, evaluating and reporting the risks threatening the achievement of the strategic and annual goals of the municipality.
- Clear division of risk management responsibilities, including reporting on their implementation.
- Providing information to the employees of the Municipality of Sliven on the current and updated risk management procedures.

The criteria for effective risk management in the municipality are:

- Development of an adequate risk management framework in the municipality;
- Applying a risk policy that gives reasonable assurance to municipal leadership on the extent to which:
  - achieving the strategic objectives of the municipality;
  - municipal risk management activities are efficient and effective;
  - financial management is adequate and the documentation process is complete and qualitative;
  - the legal framework in the area of financial management and control is applied adequately and in full.

Risk management is always an integral part of successful local self-government. At this stage of development, it is a natural and intuitive part of the decision-making process, but it is conducted informally - and very often unnoticed. This leads to omissions and ineffective risk management. Although formal risk management processes are more labor-intensive and more resource-intensive, they are linked in practice with good results, with higher organizational

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discipline and in many cases can improve the way Which the municipality operates.

The accumulation of some crisis factors in municipal activities such as: limited financial resources and lack of correlation between workflows and funding; Obsolete material and technical facilities and building stock; An organizational structure that allows for the reconciliation of duties and responsibilities by one person - as executor and supervisor or verifier; The lack of clear management philosophy and style of work directly affects the quality of municipal services and determines a number of peculiarities in implementing the institutional and program policy of the management team, lack of cohesion between municipal and rural policies and programs, limited investment opportunities, infrastructure Problems with a foreign character, other external factors, etc.

Risk management involves identifying, evaluating and controlling potential events or situations that may adversely affect the organization's objectives and is intended to provide reasonable assurance that the objectives will be achieved in accordance with Art. 12, para. 2 of the Financial Management and Control Act in the Public Sector.

Risk mitigation - Risk mitigation involves reducing or treating risk by applying controls (eg by legislation, partnership and cooperation, enhancing the effectiveness of control by strengthening existing controls or introducing new ones, etc.) in order to Reduce residual risk. The decision to limit a risk requires: adequate selection of actions in line with risk assessment; Better understanding in the field of internal control; Carefully analyzing the costs and benefits of control; Defining specific risk mitigation or risk management activities, and clearly defining roles and responsibilities.

Risk Transfer - Transferring or sharing of risk essentially means partnering with a third party so that it is managed jointly. Typical examples of risk transfer are insurance, public-private partnerships, different degrees of outsourcing agreements, etc. Such schemes allow access to additional resources (such as control activities or experience and qualifications), while limiting the possibility of losing control over the activities that is possible with a 100% third party transfer.

Tolerance of risk - The acceptance or toleration of a risk means that the municipality takes the risk without taking specific measures to manage it. Such a solution means that the risk should periodically be monitored and reassessed so that a different approach to its management can be chosen if necessary. The decision to tolerate a risk must be made taking into account the risk assessment,

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the consequences for achieving the objectives, the risk appetite and the legal consequences (for example, the decision not to take action may lead to a higher risk). The reasons for tolerance of a risk without further action for its management can be:

- Risk mitigation actions are related to significant control activities, the costs of which significantly outweigh the benefits.
- The assumption of the risk is related to the development of the municipality itself, ie. In order to achieve its objectives, it must remain flexible to the changing environment, carry out new activities and working methods, and undergo development that would be limited in a controlled environment.
- Risk management is beyond management control and / or risk mitigation could mean discontinuing activities that are of key importance to the municipality.
- Risk Avoidance (Avoidance) - Avoiding a risk means stopping activities related to its potential manifestation. Such a solution could mean that risk management should reconsider the objectives set and whether they are feasible and compatible with other objectives and core activities. Consideration should also be given to the applicable regulatory requirements and constraints in order to assess whether an activity is permissible not to operate or not to operate in a particular environment. Possibilities for risk avoidance should be considered to a certain extent, i. The objectives or activities are partially modified or discontinued, and the possibilities for achieving the objectives to be attained in a different way than envisaged.

Depending on the value of residual risk and of the ratio between risk levels and control effectiveness, the following alternatives are possible when identifying risk management measures:

- Strengthening risk mitigation activities: For high-risk risks as well as inefficiency of controls, action should be taken to reinforce existing internal controls and to introduce additional measures to limit them.
- Achieving confidence in the level of preparedness: Risks for which high value and high effectiveness of controls are identified should establish a test plan for existing controls to establish the confidence that the structural unit to which this risk relates is well prepared to limit it.
- Overall impacts measurement: For risks for which low value and low effectiveness of controls are established, their overall impact should be

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calculated to allow additional residual risk mitigation measures or a plan to be developed if necessary. Continuous monitoring and periodic review of the evaluation.

- Regrouping resources: For risks for which low value is assigned and high control efficiency, the possibility of resource regrouping should be analyzed to redirect efforts to the more significant risks without compromising the current level of governance and Control.

The process of responding to the occurrence of risk events includes the choice of safeguards based on risk assessment, implementation and verification of selected measures, assessment of residual risk. This shows that risk management is a cyclical process and should follow its natural trajectory when it runs in the municipality. The residual risk assessment is, in essence, an operational step at the end of the cycle, prescribing to repeat from the beginning. Risks need to be constantly monitored by periodically reassessing them. The well-executed and thoroughly documented evaluation greatly simplifies the follow-up.

If the observed risks have been found to be unacceptably large, it is necessary to neutralize them by implementing the additional protection measures. As a rule, for the liquidation or neutralization of the vulnerable site that made the threat real, there is a comprehensive set of safety mechanisms, different in effectiveness and value.

Risk management is a continuous process that responds to any change that may have an impact on risk and is reviewed at the discretion of the supervisor and as prescribed by the control bodies.

## **FORMULATION OF SPECIFIC MEASURES AND POLICIES IN THE FIELD OF NATURAL AND MANMADE DISASTER MANAGEMENT AND PREVENTION**

- Specific measures and policies in the field of prevention and management of natural and man-made disasters are primarily related to information. At the core of disaster risk reduction is the collection and dissemination of good practice information on the successful development of comprehensive policies in this area. The awareness of the responsible institutions ensures the easy use of good practices in the planning of preventive measures and measures and the awareness of the population facilitates their implementation.
- The first step to address the gaps in the available disaster risk information is to carry out the risk assessment. The next step is to study good practices that help reduce disaster risk and increase the responsible attitude of leading institutions and society to disasters.
- Over the last decade the Republic of Bulgaria has been affected by a large number of high-intensity disasters, which is why our country falls into the areas characterized by high risk in this sphere. Hazard identification is a lengthy process not only focused on current but also on time.
- Major natural and man-made hazards for the Republic of Bulgaria are as follows:
  - Seismic hazard
  - Seismic impacts are characterized by their unpredictability, especially in terms of time, which causes large-scale negative consequences - victims and injuries to the population, material damage, etc. From seismological point of view, Bulgaria is located in the Alps-Himalayan seismic belt, characterized by high seismicity.
  - Forecasting in this area, the simultaneous determination of the strength, location and time of the earthquake, is not a single solution. The seismic hazard can not be controlled, but seismic risk can be managed and reduced. The reduction of seismic risk is mainly due to improvement of the spatial planning and the engineering-technical design, construction and operation of the constructions.
- Danger from floods

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- Floods are common natural disasters on the territory of our country. They can cause huge damage as they affect urban territories, productive agricultural land and forest massifs. In accordance with the scientific classification for this type of hazards and in accordance with the Water Act, the floods can be natural and technogenic - caused by other influences, such as damage to a hydrotechnical facility, which can lead to an accident, and to prevent critical situations in Hydrotechnical facility.
- After the floods that have passed in recent years, it is clear that the activities to reduce the risk of flooding are not sufficient. This requires a comprehensive flood risk management policy through an integrated flood risk assessment and management approach, which is enshrined in the European Floods Directive (adopted in 2007). Its requirements have been introduced into national law through the Water Act 2010.
- Reducing the risk of floods is done primarily by constructing hydrotechnical protection systems and facilities, good spatial planning of the territory and, last but not least, increasing the readiness to prevent or reduce the negative consequences of floods through preventive measures, population training, adequate Preparation, planning of rescue activities, etc. It is also necessary to regularly clean the riverbeds and maintain them under conditions of natural conductivity.
- Danger of landslides
- The territory of the Republic of Bulgaria is characterized by a high degree of landslide and erosion-abrasion activity. Large scale landslides, collapses, abrasion and other unfavorable geodynamic processes have been manifested, which act steadily and destructively, are difficult to predict and suddenly occur. With their unpredictability they threaten the security of settlements, resorts, residential, business and industrial buildings, the technical infrastructure.
- Danger of forest fires

Forest fires are one of the main hazards to the composition, structure and functioning of forest ecosystems. Climate change over the last decade has led to increased incidence of forest fires and the size of the affected areas. Ice-ice, ice, snow-snow and snow, incl. In forest areas, lead to ecological catastrophes, affecting tens and hundreds of thousands of acres of forest land.

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- In the conditions of global warming and drought, it is logical to expect an increase in the fire hazard in forest ecosystems. The anthropogenic nature of over 90% of fires necessitates the categorization of forests near urbanized areas as high-risk. At present, there are about three-quarters of the forests in Bulgaria. For this reason, fire and forest fire management should be designed and implemented similarly to activities in the Mediterranean countries (Greece, France, Spain, Portugal, etc.), where the whole or most of the territory is considered to be heavily endangered From fires.
- Danger of meteorological phenomena such as drought, strong winds and winds, heavy snowfalls, snow storms, ice and extreme temperatures
- Drought is a consequence of reducing precipitation over a long period of time. Often a number of meteorological elements such as high temperatures, strong winds and low relative humidity coexist with drought, which makes this phenomenon very pronounced. A number of drought indicators in the atmosphere and on the ground have to be monitored operationally to determine the extent of drought and its impact.
- The negative trend observed in the many-year rainfall changes in many regions of Bulgaria shows that there is a high probability of occurrence of frequent and intense droughts in the country. This requires that the risk of drought is investigated and analyzed and that measures are developed and implemented to reduce and possibly eliminate it. As a basis for developing such measures and improving risk management of droughts, research on current climate change and rainfall and air temperature, European regulations in this area should serve.
- Strong winds are not a common phenomenon for the country. Strong winds in the country may lead to power cuts, road blocking, infrastructure disturbances and a threat to people's lives and property.
- The specificity of the continental climate is also the basis of possible snowfalls. Snow blizzards and frosts are a common phenomenon for our country, especially in its northeastern part. They are typical for December and January, but can be seen during the rest of the winter months. Snow storms and icy conditions cause air traffic disruption, road blocking, and may put many lives at risk. Snowfalls can be disastrous mainly in settlements and cause not only traffic blocking, interruption of electricity and water supply, but also medical insurance and food supply to the population.

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- Low temperatures are the reason for the icing of power lines and other open communication lines.
- Extreme temperatures can also be attributed to natural disasters. On the one hand these are anomalously low temperatures in the spring, autumn and winter periods - frosts, on the other - anomalously high temperatures in the summer - heat. In addition to impeding the day-to-day activities of the person, extreme heat causes various accidents and crisis situations. When overheating, the rail rails deform and soften the asphalt road surface, which can lead to derailment of trains and other serious problems. Failure of power lines leads to serious disturbances and damage to the power grid. Critical situations may include a number of proceedings. Extreme heat can also make human sacrifices.
- Danger from nuclear or radiation accidents

Despite the stringent security measures for the operation of different types of nuclear reactors and the availability of automated control, control and protection systems, the practice of operating them indicates that situations can arise which are accompanied by an emergency release of radioactive substances into the environment. Radioactive contamination could occur both in an emergency situation at the Kozloduy NPP, with the release of radionuclides into the environment as well as in case of transboundary radioactive contamination due to a nuclear or radiation accident in other countries, as well as in incidents with Means of transport (cars, railway wagons, craft and aircraft) carrying radioactive materials. In recent years, there has also been a worrying trend of increasing attempts to exploit radioactive sources for terrorist purposes.

- Danger of industrial accidents and accidents when transporting hazardous substances, materials and waste
- On the territory of the Republic of Bulgaria there are companies,
- Classified and registered as "high-risk enterprises" as well as "low-risk enterprises", as required by the Environmental Protection Act and the Ordinance on the Prevention of Major Accidents with Hazardous Substances and the Limitation of their Consequences. These are mainly enterprises of the chemical, explosive manufacturing and trade, petroleum and petroleum products and gas industries.

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- Major industrial accidents often have severe consequences on the population and the environment, and the impact may also affect territories beyond national borders. This underlines the need to improve the existing control of the risks of major industrial accidents involving hazardous substances and taking appropriate preventive action to ensure a high level of protection in the Republic of Bulgaria for the population and the environment.
- Danger of biological contamination
- The existing production and economic conditions, the structure of agriculture, the geographical location of the country, the deteriorated international epizootic and epiphythic situation, the trade, the import and the export with live animals, products of animal and plant origin are conditions for occurrence of outbreaks of biological contamination.
- Danger of hailstorms
- As an atmospheric phenomenon, hailstorms cause sensitive losses in agrarian production. At the same time, they cause great material damage to the building stock and the outbuildings, and often lead to human sacrifices. The most dangerous are urban storms, where the damage to crops in the field is 50 to 100%. Buildings, in their extreme manifestations as separate or series of storms and as events accumulated in one season, are disastrous in character and can significantly affect the economic performance of agriculture and hence of the national economy.
- The National Crisis Management System (NSSC) should ensure the preparation of the country, population and national economy for crisis protection, preservation and optimization of the existing elements of the crisis management system, development of bodies and mechanisms of activity and in the integrated Management system and ensuring compatibility with NATO and EU crisis management mechanisms.
- Crisis management in the country is the ability of the government, state and local administration through the established effective planning and coordination structure to fulfill their functional responsibilities, guiding the work of state authorities and crisis management tools, and directing and coordinating the actions of non-governmental bodies and Organizations in the field of crisis management.
- An administrative unit of management and expert staff is formed in each department for which the preparation and participation in crisis management

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is primarily a functional obligation. The preparation of the crisis management bodies is carried out on a unified basis by national, departmental, district, municipal and site plans.

- The main objectives of crisis management are the following:
  - - contributing to the efforts of the international community to eliminate the risk factors for security and stability, to block and resolve current crises and conflicts and to permanently eliminate the prerequisites for them to emerge in the future;
  - - preventing the development of different risk factors in indirect and direct threats to the security of Bulgarian citizens, society, the state and the nation;
  - - Keeping ready for action an institutionalized system of authorities, forces and means for immediate response to crises of different nature in the country and abroad in accordance with national interests and goals;
  - - Crisis management, blocking and preventing escalation in armed or military conflicts.
- These goals are achieved through the creation of a system of bodies, mechanisms, forces and means aimed at solving the following tasks:
  - - Preliminary preparation of the State and the system of action in crisis situations, ie. "Prevention";
  - - neutralizing or reducing risk factors, i. "Correction";
  - - curbing the escalation and spread of the crisis, i. "Counteraction";
  - - reducing the intensity of crises, i. "Reduction";
  - Elimination of consequences, planning and implementation of measures to prevent new crises, ie. "Reconstruction".
- The principles for building a crisis management system are as follows:
  - - a single system for resolving crisis situations;
  - - reconciliation of the institutional systems of authorities, forces and means with the territorial principle of crisis planning and management;
  - - the responsibility of officials to develop crisis management plans and the readiness of their subordinate bodies, forces and resources;

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- - a mixed way of assembling control bodies and forces to eradicate the consequences of crises,
- - financing by the state budget of the activities related to the establishment and functioning of the crisis management system.
- The applied procedures, the material, communication, information base and the bodies that provide and use them, as well as the forces and resources, form a crisis resolution mechanism. The effectiveness of the mechanism depends on the organization of an immediate and uninterrupted coordination process, both between competent government departments and bodies, and with NATO, the EU, the UN and its agencies, the OSCE and individual countries.
- The issue of the effectiveness of the mechanism can be solved if the following questions are answered:
  - O How to create the organization within the territorial units (districts, municipalities and town halls)?
  - O How to build a reliable and secure system?
  - O How to maintain working mode?
- Overall, more than a year after its adoption, the Crisis Management Act does not answer these questions. There are many problems, but they could only be solved with clear and precise coordination between all the structures that are an element of the NSSC. The main contractors in this area are the new Ministry of State Policy for Disasters and Accidents, the State Agency for Civil Protection, the Ministry of the Interior, the Ministry of Defense and their structures.
- Crisis management is a complex process with many components that can not be covered in one article. That is why we are addressing some of the peculiarities that underpin the achievement of greater efficiency in governance.
- 1. Basic Information Technologies
- Crisis management depends both on the timely, reliable, secure and comprehensive management of information sources, flows and users, as well as on the wealth and degree of freedom of access and use of information. These two dependencies are the opposite, so their unity is a matter of decision and quality implementation by the crisis manager.

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- Special care is needed to protect and secure the information. There are different types of information depending on the computer and communication capabilities: information gathering, information presentation, archiving, statistics and control, communication, etc.
- The tools for gathering information are various devices and programs for searching and retrieving information, and different standards and languages for their creation have been developed, the most common of which is SQL (Query Language). They are used in various search systems, such as Web Search, which are used in public information-communication networks such as the Internet.
- The processing and conversion of information uses a variety of different types, features and capabilities such as: printers, plotters, scanners, digital cameras, and more. Speech recognition systems and imaging systems based on artificial intelligence systems are also introduced.
- The means of presenting the information play an extremely important role in creating a clear and appropriate environment for assessment of the situation, decision making, choice of action and management of its implementation. The so-called A multimedia environment that increasingly plays a major role in systems of training and simulation of different types of environment and situation, conference appearances, briefings, presentations, advertisements, etc.
- Backup tools cover different types of backups and programs. The computer archive is compressed information that is stored on a medium - hard disk, CD, diskettes, magnetic-optical devices.
- Control and protection tools are most often integrated into different workflows as tools for analyzing and controlling the status of a system.
- To protect the information networks, the following types of technologies are applied:
  - - access control products, identifying servers, ringback modems;
  - - Secure Sockets Layer (SSL), Secure Hyper Text Transfer Protocol (SHTTP)
  - - Transaction technologies - Application of peer-to-peer protocols to create a secure relationship between partners;

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- special systems and algorithms such as "Hash", MD-5, SHA (Secure Hash Algorithm), combined with various keys and cryptosystems are used to protect databases.

- Periodic verification of system capabilities and performance, upgrading of additional units or system scanner to monitor and investigate system failures and reliability. Embedding systems for unauthorized access detection. Encryption of information and the use of more reliable channels are necessary measures for reliable crisis management.
- The means of communication are those that provide a variety of physical, programmable, logical links between components, such as the Local Area Network (LAN), the Wide Area Network (WAN), and the World Wide Web.
- The Crisis Management Manager needs to have a strategy for using the huge resource of information on the Internet and to liaise with research institutes and centers, universities, governmental and non-governmental bodies and crisis management organizations.
- Regardless of the facilities and the enormous amount of data and knowledge provided by the technical information tools, one should not let go of them, leaving the software and hardware to take decisions and manage their performance instead. This is a problem that has a direct impact on the science and art of crisis management.
- Protecting an organization, system, state from information threats, risks, dangers has a direct impact on its existence and survival. An important role is also played by the formation of an up-to-date information security policy.
- Exits from critical situations and crisis phases are sudden, and effective management requires full control, information, and sufficient response time. Internal difficulties are a flaw in the will, the character, the incompetent ability to impose relationships. External difficulties are the resistance of people and circumstances, competition, the fear of upcoming difficulties. Crisis Management requires a clearly presented and passionately desirable goal, readiness to overcome any difficulties, because there are no needless situations and irresistible tasks
- 2. Crisis management tools
- Key features of crises are: complexity, unique character, impact on many elements of the environment, rapid development, high degree of unpredictability and high degree of risk.

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- Crisis management is based on the following approach: complex, process-oriented and centralized.
- Items include:
  - • providing timely and accurate information about the nature and extent of the situation;
  - • information on the status of available resources;
  - • Consolidating information;
  - • coordinating the actions of the structures at national level;
  - • coordination of supranational actions in cross-border crises;
  - • providing communication.
- The steps are as follows: monitoring; Identification of the hazard; Managing and managing the crisis; Final action.
- The priorities are: first of all, the life and security of people, and then the minimization of damaging consequences.
- Key factors are grouped into the following areas: resources, infrastructure, time, information superiority.
- Business points of view are: from the point of view of the organization, in terms of processes.
- The aspects to be considered are: operational analysis, structuring, planning, implementation, completion, summarizing, strategic analysis.

Organizational structures involved in crisis management are distinguished by their subordination, areas of competence and the internal structure of organizational units.

The main data used in the estimates is related to standard resources, organizational structures, plans, network schedules, phases and texts.

Tools that are used directly for crisis management are:

- Documents and ancillary tools;
- Interfaces, Generation, Access;
- generating lists of documents;
- maps, diagrams, drawings, work diagrams, organograms.

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Through computer simulations based on strategic analysis and on the operational level good preliminary results can be obtained for the preparation of the elements of the system.

Planning is done: in advance (related to preventive measures), in real time, when applied in a practical situation, necessarily in a dialog and / or graphic mode.

Planning objects are: time, resources and capacities. An essential element of planning is balancing capacities.

Timing is mostly based on the types of dates supported by the system: hard (fixed), predictive (scheduled), current (real), automatic (determined).

Planning at a structural plan level: top-down, bottom-up, open, based on resource-based inventory based on markers.

Scheduling at network-level level: start-to-end, end-to-start, based on interconnections, automatic status-based recalculation, auto-recalculation based on time / activity ratio, floating deadlines,

Types of capacities are: levels (quantities) for material provision of processes, capacities of technical and auxiliary means, human resources.

Capacity planning is activity-based, resource-based and based on a timetable. Their balancing is achieved in three ways: real-time assessment, optimization of requirements, simulation play and incorporation of variants.

Resource planning. The following types of resources are different: raw materials, products, services (labor), technical means, human resources, financial resources.

The scope and depth of planning depends on the scope and degree of system integrity and includes: a basic record for each type of resource, attachment and blocking, maintenance of a residual residue.

The main entries are for the following data: basic (material, unit, human resources, technical equipment, infrastructure), need planning, storage, management, forecasting, accession.



Tracking timelines and making adjustments to planning and balancing include: data analysis, tracking budgets, tracking current vs. planned values, automatically accounting for activity costs, projects, units.

The information system outputs the following types of data and references:

- historical (archival) data;
- pre-defined reports, reports, analyzes;
- Cut-off and detail tailored to the rights and needs of the user;
- different types of data representation (tabular, graphical);
- Embedded tools for creating non-codewriting reports;
- defining access rights to information and a high level of protection;
- connection with external systems;
- alarm system;
- Personalize the information.

### 3. Preparing the leader in the management process

The stages in crisis management are directly related to the leader's management skills. Below is an analysis of the leadership skills required for each stage of crisis management.

Stage 1. Monitoring. Any steady state can be destabilized. For every steady state there are challenges, risks and threats. Destabilization begins when a challenge, due to an ineffective impact, is triggered by activation and becomes a risk and a threat. Leadership skills are to maintain stability.

Stage 2. Hazard identification. There are two principal issues: crisis management and crisis management. In order to govern ourselves and our organizations, we need to be aware of their internal status and the state of their relationship with other counterparts. Each type of situation requires specific management, strategic decisions are taken in a steady state, and in crisis situations anti-crisis decisions are taken.

The leader's point of view is that it is decision-making in extraordinary circumstances that can have fateful consequences for us or the public formation we belong to.

Stage 3. Managing and managing the crisis. The organizational approach to governance requires: building a framework of competences, establishing links between decision-making centers, creating a critical information group, creating rules and playing in practice.

Building a framework of competences means achieving a coherent definition of the crisis management process as well as clearly defined powers and obligations (preferably in writing) and links between decision-makers, building an effective cooperation and networking system And to develop readiness to mobilize forces for a common cause.

Create a Critical Information Group (Crisis Headquarters) that serves to use existing mechanisms, develop a variety of internal and external sources, and provide impartial and objective analysis. The second task of the headquarters is to draw up rules on: policy, participant cooperation, decision-making and standard operating procedures. Successful implementation of all projects and plans is achieved by playing through exercises and games, which are two types: planned and organized and without ad hoc planning.

Prevention is related to: anticipation of potential crisis situations, maintenance of full awareness of potential crisis environment, objective analysis of information on the development of events that could lead to a crisis and constructive intervention in pre-crisis situations.

Risk and Resource Levels are at different levels across jurisdictions across the country. In developing strategies, authorities at all levels should use the NSA list.

Since NSAs can not be reached immediately, all levels of government should maintain existing components of the national crisis management system and develop them in parallel in accordance with the following national priorities:

Firstly, there are priorities that support several NSAs, secondly, the priorities for enhancing a given capacity and, thirdly, coordination between all systems.



The financial provision of all activities is carried out by the state budget, the budgets of the municipalities, the legal entities and sole traders. The order for the use of the budget should be further developed in the Regulations on the Implementation of the Crisis Management Act. In the event of a crisis, the available resources are used, and in the event of a declared crisis situation, the reserves created for that purpose.

Implementation of the listed priority activities will probably necessitate changes to the Crisis Management Act. More and more often talk about the so-called. Third pillar of the security sector - civil security.

The civil security system should be built as a separate "pillar", equivalent to the other two (one provided by the Interior Ministry for Homeland Security, the other by the Ministry of Defense for military operations). The principle of decentralization does not negate the need for general co-ordination and management by the State Agency for Refugees and the State Agency for Refugees. Civil security policy can be seen as a combination of security policy with the so- "Humanitarian policy" (conducting humanitarian and rescue operations). Critical Infrastructure Protection, in turn, requires the establishment of, for example, a Critical Infrastructure Register that includes strategic sites such as: NPP, TPP and HPP, plants for production of strategic production, dam walls, narrow and vulnerable stretches of roads and railways, viaducts, Tunnels and others. Critical Infrastructure Protection Activities are one of the possibilities for implementing a productive public-private partnership and for business participation in securing civil security.

The involvement of the business and the non-governmental sector in the provision of civil security requires clear regulatory regulations for their licensing. It is logical for the central coordinating body of the civil security system (currently the State Agency for Refugees and / or the National Crisis Management Center) to issue licenses and certificates to NGOs as well as to commercial companies wishing or legally obliged to participate in insurance operations of civil security.

The institutionalization of the civil security system means ensuring unified coordination and governance. This should be one of the priorities of work in the new MSCA and the Security Council of the Council of Ministers. The units included in the Citizens Protection and Infrastructure system are currently: the

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LAGS which, under the CIS, must organize the Commission for Crisis Recovery and Assistance, the Permanent Commission for the Protection of the Population in Disasters, Accidents and Catastrophes (ΠΚ3ΗΒΑΚ) and the National Scientific Co-ordination Council of ΠΚ3ΗΒΑΚ.

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## **JOINT NATURAL AND MANMADE DISASTER RISK MANAGEMENT PLAN**

Legislation is one of the most important instruments of government in organising society and protecting citizens. It determines amongst others the rights and responsibilities of individuals and authorities to whom the legislation applies. On the other hand, a law has little or no value if there is neither discipline nor enforcement.

### **Relevant legislation:**

- Constitution of the Republic of Bulgaria
- DISASTER PROTECTION Act of the Republic of Bulgaria
- ADMINISTRATION Act of the Republic of Bulgaria
- Local self-government and local administration act of the Republic of Bulgaria
- DEFENSE AND ARMED FORCES ACT OF THE REPUBLIC OF BULGARIA
- LAW and statutes of THE MINISTRY OF INTERIOR of the Republic of Bulgaria
- Environmental Protection Act of the Republic of Bulgaria
- Safe Use of Nuclear Energy Act of the Republic of Bulgaria
- Water Act of the Republic of Bulgaria
- HEALTH service Act of the Republic of Bulgaria
- Health and safety at work act of the Republic of Bulgaria
- Constitution of the Republic of Serbia
- Law On Environmental Impact Assessment of the Republic of Serbia
- Law On Strategic Environmental Impact Assessment of the Republic of Serbia
- Law on Environmental Protection of the Republic of Serbia
- Law on Planning and Construction of the Republic of Serbia

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- Agriculture Law of the Republic of Serbia
- Law on agriculture and rural development of the Republic of Serbia
- Law on Free Access to Information of Public Importance of the Republic of Serbia
- Law on Geological Exploration of the Republic of Serbia
- Mining Law of the Republic of Serbia
- Law on General Administrative Procedure of the Republic of Serbia
- Law on State Administration of the Republic of Serbia
- National Governments
  - Rules
  - Ordinance
  - Instruction

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### **Legal definitions in Bulgarian, Serbian and EU legislation**

- "Natural phenomena" are phenomena of geological (geophysical, geological), hydrometeorological and biological origin such as earthquakes, floods, mass movements (landslides, debris, avalanches), storms, hailstorms, large snowfalls, Forest fires, mass epidemic and epizootic diseases, pest infestations and the like caused by natural forces.
- "Incident" is unpredictable or difficult to predict, space-time-limited, high-intensity or human activity endangering the life or health of humans, property, or the environment.
- "Accident" is a major accident involving roads, highways and air traffic, fire, demolition of hydraulic structures, accidents caused by activities at sea, nuclear incidents and other environmental and industrial accidents caused by human activities or actions.
- "Industrial accident" means a sudden technological breakdown of machinery, equipment and aggregates, or the carrying out of activities with hazardous substances and materials in the production, processing, use, storage, loading, transport or sale where this poses a threat to the life or health of humans, Animals, property or the environment.
- "Disaster area" is the area affected by a disaster.
- "Involuntarily needed volume and duration" are those in which, for a minimum period, the rights under Art. 52 to enable the necessary measures to be taken to protect against disasters.
- "Danger" is a natural phenomenon or an event caused by human activity which can cause harmful consequences for its population and property, the environment, the economy and the cultural and material values.
- "Vulnerability" is an indicator of the degree of susceptibility of a given territory or subject to the various hazards.
- "Risk" is likely to have adverse effects on the population and property, the economy and the environment as a result of the danger and vulnerability of a site / site.
- "Risk Analysis and Assessment" is to determine the nature and extent of risk as a function of hazard, vulnerability and likelihood.

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- "Critical Infrastructure" means a system or parts thereof that are essential for the maintenance of vital public functions, health, safety, security, economic or social well-being of the population, and whose disruption or destruction would have significant negative consequences for the Republic of Bulgaria in Result of the inability to maintain these functions.
- "European Critical Infrastructure" is a critical infrastructure located on the territory of the Republic of Bulgaria, the destruction or destruction of which would have negative consequences for at least two Member States of the European Union. Criteria - the number of perished or injured, economic and social consequences, taking into account the impact of damage or destruction of this critical infrastructure on other types of infrastructure, are used to assess the negative consequences.
- "Critical Infrastructure Protection Information" is any fact about a critical infrastructure that, if disclosed and disclosed, can be used to plan and / or act to cause damage or destruction of objects, Components or installations from the critical infrastructure.
- "Protection" is a set of activities aimed at ensuring the orderly functioning, continuity and integrity of critical infrastructures to deter, mitigate, mitigate or neutralize threats, risks or vulnerabilities.
- "European Critical Infrastructure Owners / Operators" are natural persons, legal entities or organizations responsible for the investment or for the orderly functioning, continuity and integrity of a particular system or part of it, referred to as ECI
- "Evacuation" is organized to remove people and animals from endangered areas and to accommodate and secure them in safe places.
- "Spreading" is organized to remove cultural and material assets from endangered areas and relocate and preserve them in safe places.

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## A. ANALYTICAL PART AND ACTION PROTOCOLS

### Section I.

#### 1. Reason for developing the plan

The joint risk management plan for natural and man-made disasters was developed on the basis of Art. 9, para 1 and 2 of the Law for protection against disasters, prom. SG. No. 102 of 19 December 2006

#### 2. Purpose of the plan

- To increase the capacity of management and administration to organize and coordinate preventive action, disaster management and response, and to repair the damage caused by them;
- Setting up an organization to take measures to protect human life and health, the environment and identifying the necessary actions of the management bodies and response forces in anticipated disasters;
- To set up an organization to timely forecast and analyze the nature and consequences of the most frequent disasters;
- Implementation of preventive measures and preventive control to prevent or reduce the consequences of disasters on the territory of the municipalities;
- The introduction of European standards and good practices for risk assessment at local level;
- Allocation of responsibilities and responsible bodies and persons to implement the envisaged measures;
- Maintaining and refining elements of the system for monitoring, early warning and disaster management, unit-of-rescue system and population formation;

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- Planning of resources and resources for prevention and for eliminating the consequences of disasters.

3. Main tasks:

3.1. Investigating, analyzing and assessing the risk of possible disasters and forecasting their consequences.

3.2. Planning of disaster protection.

3.3. Identifying measures to prevent and mitigate the consequences of a disaster.

- Carrying out preventive activities;
- Keeping the forces and resources ready.

3.4. Identifying measures to protect the population

- Build and maintain readiness of components of the monitoring, early warning and disclosure system;
- Providing and maintaining collective and individual remedies;
- Training and practical training of the governing bodies, the municipal administration, the response forces and the population;
- Assistance and disaster recovery;
- Creating reserves of financial and material resources for prevention and disaster relief actions;
- Acceptance and distribution of aid;
- Order for funerals and burial of animals for mass destruction in disasters;
- Strict compliance with the legislation of the republic of bulgaria and the international agreements on disaster protection.

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3.5. Allocation of responsibilities and responsible bodies and persons to implement the measures.

3.6. Specification of resources and resources earmarked for disaster relief.

3.7. Determination of ways of interaction between the executive authorities and the components of the Unified Rescue System

3.8. Specification of the order for timely notification of the bodies of the executive power and the population in case of danger or occurrence of disasters.

#### 4. Links to other plans

The joint risk management plan for natural and man-made disasters corresponds to:

- Relevant EU level plans and strategic document.
- Bulgarian and Serbian national strategic, planning and other documents related to natural and man-made disasters prevention and management.
- Bulgarian South-West Planning Region strategic, planning and other documents related to natural and man-made disasters prevention and management.
- Nishava Region strategic, planning and other documents related to natural and man-made disasters prevention and management.
- Sofia Distric strategic, planning and other documents related to natural and man-made disasters prevention and management.
- Svoje Municipality strategic, planning and other documents related to natural and man-made disasters prevention and management.
- Meroshina Municipality strategic, planning and other documents related to natural and man-made disasters prevention and management.

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## 5. Putting the plan into action

This Joint Management Plan for the risk of natural and man-made disasters is introduced following the announcement of "Disaster Situation"

The mayor of the municipality declares with a protocol "Disaster" for the entire territory of the municipality or part of it an emergency.

The protocol shall enter into force immediately and shall be made public by the mass media.

A copy of the order shall be sent immediately to the District Governor, the Minister of the Interior and the Mayor of the Municipality of Merosina for joint action.

The disturbing situation is canceled in advance if the circumstances, which served as basis for its announcement with an order of the mayor, have been dropped.

The start of the deprivation and the duration of its action shall be no more than 30 days from the date of its announcement.

If necessary, the duration may be extended after consultation with the regional governor and the mayor of the municipality of Merosina.

It is permissible for the plan to be put into operation without declaring a disaster or crisis situation.

In the event of a disaster situation on the territory of the municipality emergency rescue and emergency rescue work shall be organized and conducted by the mayor of the municipality with the subordinate management bodies, forces and means and the enforced efforts.

A joint management plan for the risk of natural and man-made disasters is an "open document" with the possibility of updates on changes in the legal framework and the forces and means involved in the prevention and eradication of disasters in order to ensure a "working regime" of Plan.



## SECTION II.

### GEOGRAPHIC, ECONOMIC AND INFRASTRUCTURE

#### CHARACTERISTICS OF MUNICIPALITIES

##### 1. Physico-geographic characteristics of the municipalities:

Svođe municipality is located north of Sofia and borders the municipalities Sofia, Kostinbrod, Godech, Varshetz, Vratsa, Mezdra, Botevgrad and Elin Pelin. Svođe is the second largest municipality in Sofia district and occupies an area of 866 sq.km.

The terrain is mostly mountainous with an average altitude of 818 meters. The municipality includes parts of Mala Mountain, southern slopes of Koznitsa and Big Mountain and Iskar Gorge, where is concentrated the bulk of the settlements. The features of the terrain and the geological structures define the region as a landslide.

The watercourses and the water areas within the municipality occupy 3630 ha, which is 0.42% of the total territory. The largest river that runs through the territory of the municipality is the Iskar River. The territory of the municipality has a high degree of urbanization.

The Municipality of Meroshina has a territory of 193 km<sup>2</sup> (75 sq mi). The Coordinates are 43°17'N 21°43'E The municipality borders Aleksinac municipality in the north, City of Niš in the east, Doljevac and Žitorađa municipalities in the south, and Prokuplje municipality in the west.

Municipality Merošina is located in the western part of the Niš basin.

On the northern and north-western side of the closed ranges Mali Jastrebac, on the east side is partly bounded by the river South Morava.

Central part of the territory through the main road Nis-Prokuplje, which represents the connection of the municipality with highway Belgrade-Nis and connects southeastern and eastern Serbia with Kosovo and Metohija

The traffic is well connected with neighboring municipalities and the 27 rural settlements are well connected by road network with the municipal center.

Merošina, which is located on the main road Nis - Prokuplje, is equally distant (17 km) from both the city.

The relief of Merosina is characterized by its hilly and low-mountain terrain.

The total area of the municipality is 193 km<sup>2</sup>; Arable land covers 77% of the total area.

According to the size of the territory is one of the small municipalities of Republic of Serbia.

## 2. Climatic characteristics of the municipalities:

The territory of the municipality of Svoge falls within the temperate-continental subzone of the following three climatic regions:

- Climatic regions of high fields in West Central Bulgaria;
- Climatic regions of hilly and low parts of West Central Bulgaria;
- Mountain climate region – the mid-part.

This determines that the winter is cold, summer is cool and autumn comes early, compared with other parts of the country.

Along the river Iskretska (tributary of Iskar River) there is a specific microclimate suitable for medical treatment of pulmonary diseases.

Merosina's climate is classified as warm and temperate. There is significant rainfall throughout the year in Merosina. Even the driest month still has a lot of rainfall. This location is classified as Cfb by Köppen and Geiger. The temperature here averages 11.5 °C. In a year, the average rainfall is 621 mm.

The least amount of rainfall occurs in February. The average in this month is 43 mm. Most precipitation falls in May, with an average of 71 mm.

The temperatures are highest on average in August, at around 21.3 °C. In January, the average temperature is 0.4 °C. It is the lowest average temperature of the whole year.



### 3. Demographic characteristics of municipalities:

Today Svoge Municipality consists of one administrative centre – town of Svoge and 36 villages. The population of the municipality is 21,697 people and of the city – 8562. The municipality has 17 mayoralties, 12 viceroyalty mayor and several smaller hamlets.

The population of the municipality is mainly engaged in agricultural production, in which prevail fruit production: the famous "sour cherry" planted on about 1,500 ha; plum varieties "stenlej"; strawberries, raspberries and blackberries; Production of vegetables in greenhouses: tomato, pepper, cucumber and so on.

The municipality has a primary school which is headquartered in Merošina, with five protruding eight-year classes, as well as four-year schools in almost every populated area.

### 4. Economic characteristics of the municipalities:

The population of the municipality of Merošina is mainly engaged in agricultural production, in which prevail fruit production: the famous "sour cherry" planted on about 1,500 ha; plum varieties "stenlej"; strawberries, raspberries and blackberries; Production of vegetables in greenhouses: tomato, pepper, cucumber and so on.

In the territory of Svoge there are several ventures providing jobs for a large part of the population. A part of the population is engaged with many smaller companies, as well as in government administration, education, healthcare, transport and others. The most emblematic enterprise of Svoge is the chocolate factory. In the minds of millions of Bulgarians from different generations, notions of „chocolate“ and „Svoge“ are equivalent and inseparably linked. Founded in 1924 by entrepreneur Velizar Peev, over the years it has provided a livelihood for hundreds of families from Svoge. The story of the selection of the place for construction of the factory is very interesting. It is said that Peev travelled many pretty villages, located near the river and not far from Sofia, in search of a naturally cool place, given the output that was about to be produced. He came across the present location of the factory, which is right next to the River Iskretska, with northern exposure and the constantly flowing, cool stream. Nowadays, it manufactures more than 100 kinds of products, including

the chocolates „Svoge“, bearing the mark of „Mondelez Bulgaria“. The factory provides around 450 jobs and exports its products to over 11 countries.

Another important company in Svoge is the plant for production of cardboard packages, cartons and labels „Grafobal Bulgaria“. It provides more than 120 jobs.

The enterprise for manufacturing linear knitwear, sportswear, women's, men's and children's clothing „LILIA C“ – Svoge, providing about 130 jobs and exports its products to countries like Germany, France and Italy.



## SECTION III.

### ANALYSIS AND EVALUATION OF RISK OF DISASTERS

A disaster is an event or a series of events caused by natural phenomena, incidents, accidents or other extraordinary circumstances that affect or endanger the life or health of the population, property or the environment in amounts that require action or the involvement of special forces or use of special resources. Over the last decade, statistics show an increase in the number of disasters caused by natural phenomena that have a negative impact on the population, infrastructure and economy of the country.

#### 1. Disaster Risk Analysis and Assessment

A wide range of possible disasters and emergency situations are typical for the territory of Svoge and Meroshina municipalities:

- disasters - earthquakes, floods, droughts, landslides and collapses, violent winds, sulfuric phenomena, dust storms, forest and field fires, hailstorms, snowflakes and frosts, outbreaks of contagious diseases and human, animal and plant epidemics;
- accidents - in hazardous sites, working with explosives and fire-hazardous materials, industrial poisonous substances and toxic gases;
- catastrophes - road, rail, air and deliberate actions.

The nature and consequences of the most characteristic disasters, accidents and crashes are as follows:

##### 1.1 Floods

For the municipality of Svoge and Meroshina, the group I floods are caused by the fall of heavy rains or intense melting of snow. Local floods and spills occurring in the areas around the Iskar and Nishava river basins or in the low plots and places in separate quarters of the municipalities. The danger of floods in the municipalities is increased due to the accumulation of deposits and waste of a different nature falling into the river bed as a result of the uncontrolled disposal of building materials and other municipal waste. Flooding is also possible due to a missing or poorly built and maintained sewerage network and /

or the lack of means for prophylactically clearing the river's course from self-contained trees and herbaceous vegetation.

### 1.2. Earthquakes

The municipalities of Svoge and Meroshina falls within the scope of Stara Planina seismic zone with intensity VIII grade on the scale of the MSS.

The impact of seismic earthquakes has also been caused by epicenter earthquakes from Mount Vrancea, Romania and the city without human casualties and minor damage to the building stock.

### 1.3. Snowfalls and frosts

The snowfalls and snowflakes are one of the most characteristic disasters for the territory of the municipality, given the prevailing strong northeastern winds and the flat terrain. Heavy winter conditions are a prerequisite for the occurrence of a large number of road traffic accidents and the formation of droughts. Some of the neighborhoods or the entire municipality may remain with electricity and water supply disrupted, in Due to broken power lines and accidents occurring in separate transformer stations. When such conditions occur, there is a real possibility of frostbite due to low temperatures, reduced visibility and a strong northeast wind. There is a risk of multiple slipping and falling of people accompanied by fractures and sprains of the extremities when there is a cloud.

Snowmelts form ice pendants, which are a serious danger for the population. The actions of their abolition, especially in public places with mass movement of people, is one of the main tasks in calculating the forces and means to deal with the disaster situation.

### 1.4. Droughts, hailstorms, thunderstorms and windstorms

Droughts, hailstorms, thunderstorms and windstorms are typical for both Svoge and Meroshina Municipalities.

### 1.5. Smerchers/ tornados

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The Smerchers/ tornados phenomena are rare for the territory of the Municipalities of Svoge and Merošina. They incur significant damages when they pass over the territory of the municipality in places like economic sites, forestry and agricultural masses, with the loss of animals and human sacrifices. They are, as a rule, difficult to predict.

#### 1.6. Radiation contamination and contamination after nuclear accident,

##### Transboundary transport and sources of ionizing radiation

The municipality of Svoge may be in a situation of increased radioactivity in an accident at the Kozloduy NPP, which is about ... km. From the town of Svoge. Influenced air, soil, water, agricultural production, humans and animals in the open air, buildings and facilities from discharged radionuclides will be infected to a certain extent.

Radiation situation on the territory of the municipality can be expected in the event of an accident at the NPP outside the country and transboundary transmission of radioactive products.

It is possible for the municipality to be radioactively contaminated by the transboundary transfer of radioactive substances, most likely to happen in an accident at the Cherna Voda NPP in Romania, which is about ... km away from the town of Dobrich. Potentially dangerous plants located on the territory of Ukraine after prolonged winds in the direction of Bulgaria, as well as in other parts of the continent.

#### 1.7. Industrial accidents

Industrial accidents are related to the release of industrial poisonous substances. Such accidents are possible in companies carrying out activities in sites representing first, second and third category constructions under Art. 137 of the Spatial Development Act, using or storing industrial poisonous substances and highly flammable liquids.

In the municipality of Svoge the source of accidents and the distribution of industrial poisonous substances are:

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The most complex setting would be created with dirt in:

- rail and road transport of dangerous goods;
- warehouses of companies with plant protection products.

The Municipality of Merošina is predominantly agricultural and Major industrial incidents are not likely. However the proximity to the City of Nish and the plans to develop industrial zones impose certain risks that need to be analyzed.

#### 1.8. Biological contamination of humans, animals and plants

The existing production economic conditions and structure of agriculture in the country, the geographical location of the municipality and the worsening international epizootic and epiphythic situation, omissions in the control of trade and the import-export regime with live animals and products of animal and plant origin create conditions for outbreaks Of biological contamination.

Biodiversity outbreaks are the area of people, animals, equipment, material values and the environment that are exposed to the immediate impact of bacterial agents and toxins that are likely to be sources of infectious disease spread among humans, animals and animals. plants.

The occurrence of outbreaks of biological contamination can be by inhalation of infected air, the use of contaminated food and water, by biting from infected insects, ticks or rodents, as well as in contact with sick people, animals or infected objects. A population of insects can be transmitted through air masses. Diversion is also not excluded - the most common are unprotected water sources and pumping stations, storage facilities, feeds, agricultural land.

The size of the outbreak of biological contamination depends on the biological agents, their amounts and methods of application, the density of the settlement, the presence of susceptible animals and plants, the weather conditions, the annual season and the nature of the time they occur.

#### 1.9. Crashes with ground, air and rail transport

A crash is a sudden event, phenomenon or process of destructive action, accompanied by severe consequences, sacrifices, injuries, destructions and



damages that cause losses requiring immediate localization, rescue and immediate restorative intervention on a large scale.

Catastrophes are a special category of disastrous events that can cause the deaths of many people in a short time.

The most common accidents are road-traffic accidents involving land transport. The main reason is the human factor - alcohol use and non-compliance with established traffic rules.

The most dangerous for the population and the environment are the catastrophes with trucks carrying aggressive liquids and gases. In cases of this kind, spills of aggressive liquids (acids, bases, solvents, petroleum products, chlorine, ammonia, etc.) and explosions caused by gases (propane-butane, etc.)

The extent of damage to the environment, people and material depends primarily on the amount of dangerous goods transported.

#### 1.10. Landslides, collapses, muddy streams

On the territory of Svoge and Merošina Municipalities there are no conditions for manifestations of this type of disaster. Although there is no precondition for landslides and collapses as a result of an unsealed sewerage network in some neighborhoods, mostly in the Roma neighborhoods and as a result of heavy rains it is possible to activate these processes and the collapse of earth masses.

#### 1.11. Incidents of explosives and ammunition

On the territory of the municipality there are unplanned aviation, artillery and small-scale ammunition left in the wars. A significant proportion of them have retained their combat capabilities and pose a risk of digging and attempts to dispose of or relocate by incompetent persons.

#### 1.12. Fires

Firefighting is difficult, there are no natural and artificial ponds, which greatly hinders firefighting.

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Major causes of forest fires are human negligence or intent, and rarely natural disasters.

Typical of forest fires are the rapid expansion of large areas with swirling and long-distance spraying and the formation of new outbreaks, which poses a real threat to the life of the teams involved in firefighting and animals. Depending on the peculiarities of the area around the municipality, fires occurring in forest massifs are rapidly transferred to arable land with useful crops and vice versa. Combustion products strongly pollute the environment.

The fires in the municipal part of the municipality (public, industrial and residential buildings) are mainly caused by human activity - fire on open fire, working without control of heating appliances, uncleaned chimneys, non-observance of technical measures for safety in production and repair activities, And more rarely by natural phenomena - lightning.

On the territory of the municipalities of Svoge and Merošina, it is possible to create disasters and accidents of different type and intensity, which can cause significant losses in human and material resources.

The forecast of possible events indicates that their manifestation will lead to serious difficulties in the normal operation of infrastructure in the area of disaster, accident, disaster (neighborhood or entire municipality), affecting or endangering the health of the population, property or the environment, vital Management systems and the proper functioning of production and trade that will require action or the involvement of special forces and the use of dedicated resources.

The most complex setting will be created in a devastating earthquake, flood and radiation accident.

In such cases, the District Headquarters will need to be involved in the implementation of the regional disaster protection plan and management and rescue structures at national level.

Preventive activity is a set of events that include:

- Research, analysis, assessment and forecasting of the risks of disasters;

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- Categorization of the territory of the municipality depending on the above risks;
- Planning and coordination of measures for the protection of the population and infrastructure by the bodies of the executive power, the municipal administration, the economic and non-profit organizations, the sole traders and the legal persons;
- The implementation of preventive measures to prevent or reduce the consequences of disasters, such as: spatial planning, urban, construction and other technical measures, building and maintaining surveillance, early warning and disclosure systems, providing collective and individual remedies, training and practical training of the municipal administration, the response forces and the population;
- In the event of an outbreak of biological contamination, it is of particular importance to have an information campaign, prevention, treatment and disinfection in due time. It is necessary to determine the boundaries of the outbreak of biological contamination from special anti-epidemic and proto-epizootic formations of the regional food safety directorate (rda) and regional health inspection (rhi);
- Development of components of the monitoring, early warning and disclosure system;
- In order to ensure the living conditions of the population in distress, it is necessary to create stock of material and technical means and to regulate the order and the ways of using them.

## 2. Identify significant critical locations and potential

Hazards (infrastructure, manufacturing, services) on the territory of the municipalities of Svoge and Merošina

### 2.1. Significant Critical Places

- Bridge facilities

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- Walking Subways
- Railway overpasses.
- Tunnels
- Road Assemblies

#### 2.2. Sites with risky productions and activities

- Food business enterprises that use industrial poisonous substances for technological purposes;
- The gas stations and gas stations built in different areas of the municipality;
- Public buildings with mass residence - administrative, social, health, cultural, commercial complexes.

#### 3. Risk to the population

Possible potential hazards for the population on the territory of the Municipality of Svoge are mainly from enterprises from the food industry and companies that use for technological needs, acids, petroleum products, aluminum paste for aerated concrete, plastic raw materials and others. Which are rated with a low level of risk and low risk.

- Potentially explosive and fire-hazardous sites are represented by the gas stations and gas stations and gasified objects of public and private nature built in different regions of the municipality.

#### 4. Conclusions from disaster analysis and evaluation of risks

- In the Municipality of Svoge, various disasters, accidents and catastrophes can occur, which can cause significant losses in human and material resources. The forecast of possible events shows that their manifestation will lead to serious difficulties in the normal operation of infrastructure in the disaster area, will disrupt vital management systems and the normal functioning of the economy. The most complex setting will be created in a devastating earthquake, flood and accident at a nuclear power plant.

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- To manage crisis situations, reduce losses and eliminate the consequences, it is necessary to plan and coordinate the measures for the protection of the population and the property of the executive bodies, the local self-government and the local administration, the organizations for economic and non-profit purposes.
- The nature of the consequences of possible disasters and accidents requires readiness to use all means and means of protection of the population and the national economy and to carry out preliminary measures to prevent and reduce their harmful impact. Particularly important for the successful protection of the population are the preventive activities, especially those that allow the prognosis of the occurrence and / or development of the disastrous phenomena, as well as the elimination of the prerequisites for accidents and catastrophes. Care should be taken to strengthen national seismological, meteorological and hydrological observation and forecasting systems and develop their warning functions.
- In the event of an outbreak of biological contamination, it is of particular importance that prevention, treatment and disinfection be carried out in a timely manner. It is necessary to determine the boundaries of the outbreak of biological contamination by special anti-epidemic and proto-epizootic formations of the Regional Food Safety Directorate (RDA) and Regional Health Inspection (RHI).

Restricting the emergence and spread of acute infectious diseases and pests on farm animals and plants is the task of the Bulgarian Food Safety Agency, the National Plant Protection Service and their structures in the Svoge region.

The volume and the specificity of emergency and emergency rescue work necessitates the maintenance of the state forces and resources of the Ministry of Interior - DG Fire Safety and Protection, the departments; Bulgarian Red Cross and formations in production units with risky productions.

The possible consequences for the population in the event of disasters and accidents necessitate continuous and purposeful training on the means of protection and self-defense and timely information.

To ensure the implementation of emergency and emergency rescue work and to ensure living conditions in the distressed population of the municipality, it is

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necessary to create stock of material and technical means and to regulate the order and the ways of using them.

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## SECTION IV.

### PREVENTION MEASURES, REDUCTION RISK FROM DISASTERS

Measures to prevent or reduce the risk of disasters are made on the basis of the results of the expert assessments for disaster risk assessment on the territory of the municipality. They can be organizational and practical, such as:

- Designation of rehabilitation facilities or construction and preparation of a proposal for inclusion in the national disaster protection program;
- Preparation of requests for expertise on the status of critical sites and facilities;
- Continuous maintenance and updating of the municipal disaster protection plan - in its analytical part in the event of a disaster and in its applied part of the forces and means for disaster relief
- Implementation of disaster relief actions - training seminars and practical workshops on interaction between management bodies, response forces and the population - by elements or overall.
- Establishment and maintenance of on-call duty by duty officials, disclosure tools and measuring equipment as components of the surveillance, early warning and disclosure system.

Planning of funds in the municipal budget for:

- Subscription costs for standby auto and engineering

Disaster response technique

- Immediate costs for performing disaster-protection activities.
- Reserve to provide urgent assistance to victims in disasters, including: feeding and temporary accommodation of injured persons, domestic and

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farm animals, handing out clothing, blankets and household property to injured persons, taking other unplanned measures.

## SECTION V.

### MEASURES TO PROTECT POPULATION IN DISASTERS

Disaster protection measures are a set of organizational and technical measures to reduce or prevent the harmful effects of factors accompanying disasters and include:

- Building / upgrading the monitoring, early warning and public disclosure systems. They are based on:
- Information and data provided by individuals, organizations and institutions;
- Information and data from monitoring systems for meteorological, hydrological, seismological, chemical, biological, radiological, nuclear, ecological and other objects and phenomena;
- Information and data received from the national emergency call centers 112;
- Hydrometeorological prognostic information for dangerous phenomena from NIMH;
- International exchange of information and data;
- Planning the provision of temporary removal of the population, animals, diversion of material values from suspected endangered municipal territories;
- Providing collective and individual means of protection;
- Providing temporary provision of drinking water, food, shelter and other necessary means for the injured population of the municipality;
- Preparation of manuals and population training for disaster response;
- Conducting exercises to build practical skills and habits for responding to disasters.

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## SECTION VI.

### DISTRIBUTION OF OBLIGATIONS AND RESPONSIBLE BODIES AND PERSONS FOR IMPLEMENTING THE MEASURES

#### Major responsibilities of the Mayor of Municipalities

- Prevention of disaster-related activities
  - Organize and manage the disaster protection on the territory of the municipality;
  - Develops a municipal plan for disaster protection (the plan is adopted at a meeting of the municipal council) together with representatives of institutions and legal entities dealing with disaster protection on the territory of the municipality.
  - Organize, coordinate and carry out preventive measures to prevent or reduce the consequences of disasters;
  - Carry out the timely disclosure and informing of the population in the event of a threat or the occurrence of a disaster;
  - Plans in the draft of the municipal budget financial resources to ensure the activities related to the disaster protection plan in the municipality, as well as a reserve for urgent and unexpected costs related to the protection of the population;
  - Submit an annual report on the disaster protection activity to the regional manager.
- In case of disasters on the territory of the municipality:
  - Coordinate rescue and emergency restoration work;
  - Establish a headquarters for implementation of the municipal plan for disaster protection and for interaction with the headquarters under art. 62a, para 2, art. 63, para 2 and art. 64, para 1, item 10 of the disaster protection act;

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- May declare a state of emergency on the territory of the municipality;
- Exchange information with the operational center of the ministry of interior in the district;
- May attract legal and natural persons to provide personal or material assistance in accordance with their capabilities;
- May include in the activities of protection and the established voluntary formations;
- May request coordination by the regional governor;
- Organize and coordinate the temporary removal and provide emergency assistance to the injured parties;
- Organize and coordinate the provision of reconstruction assistance to the population in case of disasters;
- Organize and control the execution of urgent disaster recovery works.

***Bodies for the protection of public order***

- Protection of public and private property in distressed areas.
- Maintaining passages in distressed areas in order to provide routes and conditions for the introduction of rescue teams from the components of the Joint Saving System. Assisting the medical teams in first aid to the victims and identifying the perpetrators.
- Control of traffic safety when transporting essential necessities, medicaments and others to affected and cut-off areas.
- Ensure the isolation of districts (neighborhoods) and the provision of a leakage regime when imposing a traffic ban.
- Ensure order and safety in the evacuation of the population and the distraction of material values from the distressed areas.

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- Active measures to overcome possible panic and disorder, timely detection of criminal offenses, fight against marauders and public order violations.

### ***Components of the Uniform Rescue System***

The Unified Rescue System is the organization, coordination and management of disaster preparedness, disaster response, and, where necessary, simultaneous rescue and emergency rescue work by two or more of its units or units.

The main components of the unified rescue system are the structural units of the Ministry of Interior - Regional Police Directorate (Police District I), Regional Fire Safety and Population Protection Directorate - Svoge (Emergency Rescue Group, RS Fire Safety and Protection of the Population) and the Center for Emergency Medical Care. The main components of the unified rescue system provide uninterrupted readiness to receive disaster messages, their assessment and immediate action.

The civil protection activities of the constituent parts of the ESS in case of threat or disasters shall consist of:

- Warning;
- Implementing urgent mitigation measures;
- Disclosure;
- Rescue operations;
- Medical assistance in emergency situations;
- Providing first psychological assistance to victims and rescue teams;
- Managing and eradicating environmental incidents;
- Protection against explosives and ammunition;
- Search and rescue operations;

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- Radiation, chemical and biological protection in case of incidents and accidents with dangerous substances and materials and against nuclear, chemical and biological weapons;
- Restriction and elimination of fires;
- Temporary removal, evacuation, concealment and provision of individual remedies;
- Carrying out emergency emergency restoration work;
- limiting the spread and eradication of emerging epidemic outbreaks, epidemics and epizootics from infectious and parasitic diseases;
- Other security-related operations.

Main competences and obligations of the constituent parts of the ESS:

- Structural units of the Regional Directorate "Fire Safety and Population Protection" Svoge - MoI in carrying out rescue and emergency disaster recovery works are entitled to:
  - Emergency Rescue Group
  - Enter at any time in residential, manufacturing and other buildings and premises of physical and legal persons directly affected by the disaster;
  - Destroy buildings or parts of buildings, dismantle structures, remove, destroy or damage property, trees or other plantings where there is no other way to act;
  - Use rescue, transport, communication and other technical means - owned by natural and legal persons;
  - Attract citizens to cooperate;
  - Amend the order of movement in the area where emergency and emergency rescue operations are carried out until the competent authorities arrive.

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When exercising control over the protection:

- Carry out inspections of facilities handling hazardous substances and materials;
  - Perform inspections of local automated disclosure systems;
  - Carry out inspections in citizens' dwellings during the day in the presence of their occupants upon receipt of a written signal of the presence of hazardous substances or materials and, in the absence or refusal of the matter, after permission of a judge from the respective first instance court;
  - Carry out inspections in connection with the implementation of operational flood protection;
  - Give mandatory prescriptions;
  - If there is evidence of a criminal offense, the respective prosecutor shall be alerted;
  - Require from state and local authorities, organizations, legal entities and citizens documents and information related to the protection provided, observing state, official and commercial secrets classified information.
- Regional Fire Safety and Population Protection Service - Svoge is the Ministry of the Interior's specialized service for fire safety and protection of the population against fires, disasters, accidents and catastrophes. It carries out its activity independently or jointly with other municipal authorities, organizations and citizens.

In fulfillment of its tasks the District Fire Safety and Protection of the Population Service shall carry out:

- Fire extinguishing activity;
- Emergency rescue activity;
- State fire control;

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- Preventive activity;
- Scientific applied and expert activity;
- Information analytical activity;
- Permitting and controlling of traders carrying out fire-extinguishing or rescue operations or fire inspections of sites.

Firefighting activity includes: defining the means, means and means of fire extinguishing; Developing plans for the liquidation of accidents; Immediate dispatch of forces and means of fire notification; Saving people and property; Restriction and elimination of fires; Providing first aid to the injured; Organizing the transportation of the injured to the hospital.

Emergency-rescue activity includes: determining the ways, means and means of carrying out the activity; Immediate dispatch of forces and means of communication of disasters, accidents and accidents; Mitigation and eradication of the consequences of disasters, accidents and catastrophes; Saving people, property and material values; Providing first aid to the injured; Organizing the transportation of the injured to the hospital.

Preventive activities include: Informational awareness of the population to form necessary behavior and actions in the event of fires and catastrophes; Coordination and interaction with state bodies and organizations in connection with the preparation of the population for fire and accident actions; Publishing activities in the field of fire safety and protection of the population.

**Powers of the Regional Fire Service and Protection of the Population  
District Authority of Svoge - Ministry of Interior**

Firefighting and rescue of people and property in the event of fires, accidents, disasters and accidents are allowed to:

- Enter at any time in residential, manufacturing and other buildings and premises of natural or legal persons;

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- Destroying buildings or parts of buildings, dismantling structures, removing, destroying or damaging property, trees or other plantings where there is no other way to act;
- Use rescue, extinguishing, transport, communication and other technical means - owned by natural or legal persons;
- Attract officials and citizens for assistance;
- Modify the movement order in the area where rescue and extinguishing actions are carried out until the arrival of the relevant competent authorities;
- Use gratuitous water sources and water supply networks to provide the necessary quantities of extinguishing water.

The state authorities, organizations, legal entities and citizens are obliged to observe the orders of the Regional Fire Safety and Rescue Authority and to assist in the exercise of their powers.

### ***Obligations of legal persons and sole traders***

Legal persons and sole traders, owners and users, operating in sites representing first, second and third category constructions under Art. 137 of the Spatial Planning Act, which constitutes a danger for the occurrence of disasters, develop an emergency plan of the site, which contains:

- Maximum possible consequences for the staff, the population and the environment from an accident at the site;
- Measures for limiting and eliminating the consequences of an accident at the site;
- Measures for the protection of the personnel;
- The distribution of the obligations and the responsible structures and persons for the implementation of the envisaged measures;
- The resources and resources needed to implement the envisaged measures;

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- The readiness for reaction of the structures and persons under item 4;
- The procedure for informing the executive authorities on the necessity of introducing the plans for protection in case of disaster.

Legal persons and sole traders, owners and users, operating in sites representing first, second and third category constructions under Art. 137 of the Spatial Development Act (Art. 35 of the Act on the Protection of the Environment):

- 1. Approve and update in case of change of circumstances the plan under par. 1;**
- 2. Organize drills for implementation of the emergency plan at least once a year;**
- 3. Provide the Mayor of the municipality with information on the preparation of the Municipal Plan for the Protection of Disasters concerning:**

- (A) The sources of the risks of their activities;
- (B) The likely consequences of accidents and the ways of their eradication;
- (C) Possible impacts on the population and the environment;
- (D) The activities, forces and means for conducting rescue and emergency emergency restorations in the site.

- 4. In the event of an accident at the site, the following shall be obliged:**

- (A) Immediate start of emergency and emergency rescue work;
- (B) Immediately report the accident to an operational center of the General Directorate "Fire Safety and Protection of the Population" - moi and the mayor of the immediately threatened municipality;
- (C) Provide the components of the single life-saving system with information on explosives, hazardous chemicals, sources of ionizing radiation, as well as other information on dangers to life and human health;

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(D) In the case of participation of teams from the single rescue system, cooperate with them in the elimination of the accident;

(E) Ensure the safe disposal of waste resulting from the accident and its eradication.

**5. Build and maintain local disclosure systems;**

**6. Create, prepare and keep ready the forces and means of protection of the workers on the territory of the site;**

**7. Conduct training of workers for disaster protection.**

Legal entities and sole traders except legal entities and sole traders, owners and users, operating in sites representing first, second and third category constructions under Art. 137 of the Spatial Development Act, operating in industrial buildings and in public service buildings representing first, second and third category constructions under Art. 137 of the Spatial Development Act, draw up a plan for the protection of residents' disasters, which contains:

- Risks to the site according to the municipal plan for disaster protection;
- Measures for the protection of the residents;
- Allocation of the responsibilities, the responsible structures and the persons for implementing the envisaged measures;
- The resources needed to implement the envisaged measures;
- The reaction time of the structures and persons under item 3;
- The way of interaction with the components of the single life-saving system.

Legal entities and sole traders except Legal entities and sole traders, owners and users, operating in sites representing first, second and third category constructions under Art. 137 of the Spatial Development Act, operating in industrial buildings and in public service buildings representing first, second and third category constructions under Art. 137 of the Spatial Development Act:

- To approve and update in case of change of circumstances the plan for protection in case of disasters;
- Organize trainings for the implementation of the disaster protection plan at least once a year;
- Build and maintain local disclosure systems;
- Create and maintain on standby means for protection of the residents on the territory of the site;
- Conduct training of the personnel for disaster protection.

Legal entities and sole proprietors included in the disaster protection plan are required to provide the planned assistance on request.

Legal entities and sole traders - operators of radio and television programs, upon request by the MoI operational centers of the single rescue system, immediately and without changing the content and meaning of the urgent information necessary for the protection of the population.

The information is disseminated free of charge.

## **8. Resources and resources to implement the activities**

### ***Material and technical support***

The material and technical provision of disaster protection includes:

- Ongoing maintenance of the forces and means of the unified rescue system by their line ministries;
- Concluding contracts between the municipality and commercial companies and service companies, production, repair and supply of transport and engineering equipment, food, water and other consumables and property necessary for the prevention and eradication of the consequences of disasters;

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- Design and implementation of capital construction, construction and maintenance of monitoring, early warning and disaster disclosure systems;
- Implementation of international economic and technical cooperation in the field of disaster protection;
- Provision of municipal property and movables for the purpose of disaster protection;
- Other activities related to the provision of disaster protection.

Material and technical provision of disaster protection is provided by:

- Budgets of ministries and agencies;
- The municipal budget;
- Commercial companies and sole traders - for their sites.

When carrying out rescue operations, the voluntary formations are funded by the municipality and the legal entities and sole traders.

If necessary, the victim population shall be given clothes, shoes, bedding, tents and others from the established between a regional warehouse of the Ministry of Interior reserve, the Bulgarian Red Cross under terms and conditions set by the Interdepartmental Commission for Reconstruction and Assistance to the Council of Ministers, At the request of the mayor of the municipality, according to the estimates and the necessity of the damaged objects located on the territory of the Municipality of Svoge.

### ***Financial security***

- Expenditure related to pre-provision of resources for disaster relief operations is absorbed from the budget of the municipal administration and from the budgets of the sites located on the territory of the municipality.
- The unforeseen extra costs for the rescue work are provided annually with the Law on the State Budget of the Republic of

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Bulgaria for the respective year and for the subsequent ones depending on their size with normative acts of the Council of Ministers and the National Assembly.

- The funds shall be declared to the Interdepartmental Commission for Reconstruction and Assistance to the Council of Ministers with a motivated request for financial assistance and shall be adopted after a decision of the Commission. The amount of the requested financial support shall be evidenced by the submission of copies of the primary financial accounting documents or financial estimates of the necessary expenditure.

#### **9. Means of interaction between the components of the single life-saving system**

Interaction and coordination of the components of the Single Rescue System is carried out through the Operations Center (IC) of the Ministry of Interior.

The Operations Center of the Ministry of the Interior:

- Receive and evaluate information on emergencies;
- Notify the competent components of the Joint Saving System and coordinate further work on the basis of standard operating procedures;
- Carry out early warning and disclosure to the executive bodies, the constituent parts of the unified rescue system and the disaster population;
- At the request of the head of the site, the mayor of the municipality or the district governor organize the integration of the components of the single rescue system as well as additional forces and means provided in the disaster relief plans.

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The transmission of information between the executive authorities and between the components of the Unified Rescue System in preparation for disaster response and emergency and emergency rescue operations is also carried out through the disaster and emergency communication information system.

Providers of electronic communications shall be obliged to assist the Ministry of Internal Affairs in disaster and emergency communications implementation of the National Emergency Call System with a single European emergency number 112.

Interaction and coordination between the parts of the single rescue system involved in rescue and emergency emergency restoration work in the disaster area shall be carried out by the site supervisor.

Head of the site is the head of the Territorial Unit of the Directorate General for Fire Safety and Protection of the Population or an official authorized by him, except in the case of epidemics and epizootic diseases.

In the case of epidemics and epizootic diseases, the head of the Regional Health Inspection or the Regional Directorate of Food Safety is the site supervisor.

The head of the site in the course of rescue and emergency rescue works shall have the right to:

- prohibit or restrict the entry of persons to the place of intervention;
- ordered temporary removal of persons from the place of intervention;
- order immediately to make and stop construction works, field works or field demolitions or demolition of buildings and facilities or parts thereof in order to reduce or eliminate the risks of the disaster;
- require legal or natural persons to provide personal or material assistance;
- set up headquarters with representatives of the participating teams of the single rescue system;

- divide the place of intervention into sectors or divisions, identify their leaders, assign tasks, and allocate resources and resources to them.

#### **10. Order for Early Warning and Disclosure of the Bodies of the Executive, the Components of the Unified Rescue System and the Population in the Event of Emergency**

In the event of disasters, accidents and catastrophes, the operational duty officer in the municipal administration receives information from the control and supervisory bodies, officials from the subject of the event and from individual citizens.

The timely notification of the types of hazards to the bodies of the executive power, the constituent parts of the single rescue system and the population of the municipality is carried out according to the prepared notification scheme by the municipal administration's operational on duty and the current communication information system of the Ministry of Interior. The use of the telecommunications network of BTC-EAD, the Bulgarian National Television, the Bulgarian National Radio, the operators (mobile, cable and broadcast) audio-and / or television activities, local media.

The timely notification of the bodies of the executive power is done with a signal "DISASTER", and of the population - according to the "Table of the signals for the different types of hazards and the means for their transmission".

The operative duty officer in the municipal administration immediately informs the mayor of the municipality and, according to the situation and the instructions given by the mayor, other members of the headquarters for the implementation of the municipal plan for disaster protection and for interaction with the staffs under Art. 62a, para 2, Paragraph 2, and Article 64, paragraph 1, item 10 of the Disaster Protection Act. Through the information system the duty officer informed the operative duty officer in the Regional Administration.

In the event of a crisis situation, the Mayor of the municipality, personally or through his press center, acquaints mass media representatives



with the situation and then in person, with the assistance of the media, informs the population about the situation and the measures taken to protect them.

***Notification protocol for administrative structures of the single rescue system***

The co-ordination of the components of the single life-saving system is carried out through the Operational Center of the Fire Safety and Protection of the General Directorate of the Ministry of Interior

The notification of disasters on the territory of the municipality is transmitted to the components of the single rescue system via the Operational Center of the General Directorate "Fire Safety and Protection of the Population" - Ministry of Interior, established at the regional level.

Operational Center of the General Directorate "Fire Safety and Protection of the Population" (ПБЗН)- Ministry of Interior:

- Receives and evaluates information on emergencies;
- Notify the relevant components of the single life-saving system and coordinate further work on the basis of standard operating procedures;
- Performs early warning and disclosure to the executive bodies, the constituent parts of the unified rescue system and the disaster population;
- At the request of the head of the site, the mayor of the municipality or the district governor organize the integration of the components of the single rescue system as well as additional forces and means provided in the disaster relief plans.