

COMPARATIVE REVIEW OF THE LEGAL AND STRATEGIC FRAMEWORK OF THE CIVIL PROTECTION SYSTEM IN SERBIA AND THE EU

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1. LIST OF ABBREVIATIONS

CCA	Climate change adaptation
DRM	Disaster risk management
DRR	Disaster risk reduction
EMS	Emergency medical services
HNS	Host Nation Support
MEP	Ministry of Environmental Protection
Moi	Ministry of Interior
NDRA	National Disaster Risk Assessment
NDRMP	National Disaster Risk Management Program
NEMH	National Emergency Management Headquarters
OSCE	Organization for Security and Co-operation in Europe
PIMO	Public Investment Management Office
RGA	Republic Geodetic Authority
RHMSS	Republic Hydrometeorological Service of Serbia
SCTM	Standing Conference of Towns and Municipalities
SEM	Sector for Emergency Management
UCPM	Union Civil Protection Mechanism
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
RWD	Republic Water Directorate
MAFWM	Ministry of Agriculture, Forestry and Water Management

2. BACKGROUND AND INTRODUCTION

2.1. Scope of the review

The purpose of the Comparative Review of the Legal and Strategic Framework of Civil Protection system in Serbia and the EU (the Review) is to identify areas within the legal and strategic framework of Republic of Serbia that require further alignment with EU requirements and to provide a set of clear and detailed recommendations on how to better align the legal and strategic framework of Republic of Serbia with EU requirements related to Civil Protection is a concrete objective and output of this Review. It is important to highlight that the scope of this Review is high level strategic documents of the Republic of Serbia and legislation at the state level.

The 2014 OSCE Ministerial Council Decision No. 6/14 (MC.DEC/6/14) on Enhancing Disaster Risk Reduction encourages participating States to foster security and resilience and to strive to adopt an integrated approach to disaster risk management including measures for prediction, prevention, mitigation, preparedness, response and recovery at all levels¹. The Decision also tasks the Office of the Coordinator of OSCE Economic and Environmental Activities (OCEEA), and where possible in co-operation with the OSCE field operations, to support participating States upon their request in strengthening disaster risk reduction and management at all levels.

In light of its mandate, the OCEEA in partnership with the OSCE Mission to Serbia and in cooperation with the Serbian Public Investment Management Office (PIMO), commissioned this Review to support state authorities responsible for managing risks of natural hazards in the Republic of Serbia to strengthen the legal and institutional framework related to Civil Protection.

The review analyses the state of the current disaster risk reduction and emergency management system, designed and implemented in accordance with the national strategic

¹ <https://www.osce.org/files/f/documents/8/6/130406.pdf>

framework, and develops recommendations to align it with the Civil Protection system of the EU.

In drafting the Review, the expert focused on:

- Reviewing and improving the national institutional and legal framework on civil protection, including the National Disaster Reduction Management Programme (NDRMP), its Action Plan for 2016-2020 and the Law on Disaster Risk Reduction and Emergency Management and other pertinent legislation;
- Drafting recommendations to align the Serbian with the EU legal framework for civil protection;
- Proposing awareness raising activities about disasters (natural and man-made), their prevention and response, among civil protection professionals, volunteers and within the population in general;
- Identifying good practices and areas for improvement and propose a series of recommendations to contribute to its policy goals.

2.2. Methodology

This Review is produced based upon a desk review and a comparative analysis of relevant strategic documents, frameworks, legislation and available recent assessments and analysis with EU policy documents, laws and regulations. Collecting, reviewing and synthesizing data and findings from previous research and existing reference documents, with the aim of gaining a broader knowledge and understanding of the country context as well as updating the latest findings.

The following documents were reviewed and analyzed:

- The Law on Disaster Risk Reduction and Emergency Management
- The Law on Reconstruction following Natural and Other Hazards
- The Peer review report – Republic of Serbia 2019

2.3. Country profile

The Republic of Serbia is located in the central Balkans in southern Europe. The country consists of plains in the north, hills and rivers in the center, while mountains shape the south of the country. Serbia's climate ranges from continental in the north to Mediterranean and continental in the other regions. Summers in the north are generally hot and humid and winters quite cold. Away from the north, summers tends to be hot and dry and winters relatively cold with heavy snowfall. The country's population is about 7 million (2016) and the capital, Belgrade, is home to 1.3 million people. The largest ethnic group comprises Serbs (83.3%) and smaller ethnic groups are Hungarians, Roma, Bosniaks and others².

Serbia is an upper-middle income EU candidate country. Following the conflict and sharp economic decline in the 1990s, associated with the breakup of the Socialist Federal Republic of Yugoslavia, Serbia enjoyed an average annual gross domestic product (GDP) growth of 5 per cent between 2001 and 2008 and a decline in poverty. However, average annual real GDP growth dropped to almost zero, with economic contractions in 2009, 2012 and 2014. Considering the human development trends between 1990 and 2014, the country's human development index (HDI) increased from 0.726 to 0.745, mainly due to increases in life expectancy at birth and mean years of schooling³. The socioeconomic challenges stem from the fragile growth pattern and the frequent occurrence of disasters, as evidenced by the May 2014 floods, which caused an estimated loss of 5 per cent of GDP to the economy, and set back the yearly growth to the negative rate of minus 2 per cent, according to the National Bank of Serbia.

According to the INFORM Risk Index of 2019⁴, Serbia's Risk Index is 3.5 as Serbia is highly exposed and vulnerable to natural hazards. The major natural hazards to which the country is exposed to are (flash and river) flooding, storms, drought, landslides and earthquakes.

The risks are not equal across the entire territory and vary depending on the type of hazard, exposure, vulnerability and coping capacity. Floods are the main hydrometeorological hazard in the country which occur most frequently in the Vojvodina region and

2 https://eacea.ec.europa.eu/national-policies/eurydice/content/population-demographic-situation-languages-and-religions-66_en

3 Country programme document for Serbia (2016-2020)

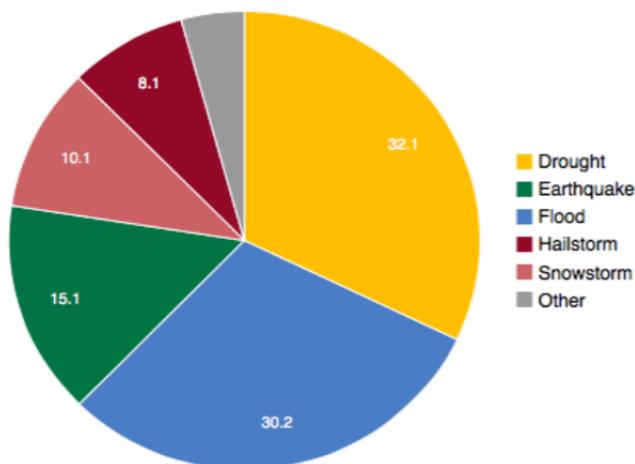
4 <https://reliefweb.int/sites/reliefweb.int/files/resources/Inform%202019%20WEB%20spreads.pdf>

along the river courses of the Sava, Drina, Velika Morava, Juzna Morava and Zapadna Morava. Flash floods can occur in the smaller river basins and are caused by short intensive rainfall, mostly due to summer storms. Extreme rainfall during April and May 2014 led to the worst flooding in over a century and significantly affected 24 municipalities. The total damage and loss to all sectors was estimated at EUR 1.5 billion, of which EUR 228 million or 15 percent was the impact of the floods on the agriculture sector. Serbia has a range of flood protection and control infrastructure, which aims to prevent and mitigate the impacts of flooding. The country's flood-prone areas cover around 1.6 million hectares, which includes over 500 larger settlements, more than 500 large commercial buildings, around 1 200 km of railway and more than 4 000 km of roads. In order to protect against flooding, over 3 400 km of embankments have been built and river regulation of about 420 km has been completed. However, in recent years, investment for the maintenance of facilities and riverbeds have reduced. As a result, due to the lack of maintenance of the riverbeds, the embankments of waterways are highly exposed and at risk of flooding.

Droughts are most prevalent in the eastern part of the country and the Pannonian Basin in the north. Catastrophic droughts have occurred in Serbia three times in the past 20 years. According to temperature and precipitation data during the period of 1991-2010 as well as the average maize yields, the extremely dry years included 1992, 1993, 1998 and especially 2000, 2003 and 2007⁵. In 2012, the country was again hit by a drought during the summer, with estimated losses in agricultural production of round USD 2 billion. Drought has caused more economic losses than flooding during the period 1990-2014 in Serbia. Mainly triggered by drought, but also due to human causes, wildfires are equally frequent and widespread during the dry summer season, threatening the 28 percent of the Serbian territory that is covered by forests. Between 1998 and 2008, 853 forest fires burned an area of 16 357 ha and 258 forest fires were counted in 2007 alone, causing damage of approximately EUR 40 million and burning more than 5200 ha⁶.

5 WMO/UNCCD/FAO and UNW-DPC, 2013

6 http://botanicaserbica.bio.bg.ac.rs/arhiva/pdf/2009_33_2_499_full.pdf



Source: CRED EM-DAT, 2015

► Figure 1: Combined economic losses by type of hazards in Serbia, 1990-2014

The average annual loss caused by all hazards is estimated at nearly USD 400 million per year⁷. The highest mortality losses by hazards are caused by fires, followed by snowstorms and flooding as observed during the 1990-2014 period.

Landslide risks in the country are considered low. Earthquake risk is considered moderate for the entire country except for the north of the country.

Climate change projections estimate the increase in frequency and intensity of natural hazards, such as flooding and drought as well as in terms of scope and duration. A substantial number of studies predict an increase in intensity and frequency of flooding, particularly in the winter season. Climate change is expected to affect water resources. An assessment of the effects on water resources indicates a general decrease of water flow at the national level of 3 percent per 10 years⁸, caused by a decrease in annual precipitation. However, at the same time the number of extreme weather events, including heavy and excessive rainfall is expected to increase due to climate change.

⁷ <http://www.preventionweb.net/countries/srb/data/>

⁸ <http://www.klimatskepromene.rs/uploads/useruploads/Documents/Da-li-je-casa-pola-puna-ili-prazna.pdf>

In the aftermath of the extraordinary floods that hit Serbia and the neighboring countries in May 2014, which were considered the worst floods since record-keeping began 120 years ago, the focus was targeted at strengthening capacities in emergency management, at both state and local levels. Since then, the country has placed strong efforts in shifting away from a reactive emergency response-oriented approach towards one that is more focused on proactive disaster risk reduction.

To that end, a new Law on Disaster Risk Reduction and Emergency Management was adopted at the end of 2018, which is fully aligned with Sendai Framework for Disaster Risk Reduction 2015-2030.

The key institution responsible for civil protection, prevention, risk management, fire and rescue is the Sector for Emergency Management (SEM), which is directly under the Minister of Interior. The coordinating entity for disaster recovery and for the allocation of international aid is the Public Investment Management Office of the Government of the Republic of Serbia (PIMO). It coordinates implementation of Serbia's National Disaster Risk Management Program across all state (national, regional and local) authorities.

3. FINDINGS

3.1. National policy and legal framework

► Overall Legal Framework:

Serbia has made important steps during the past few years in strengthening the legislative, policy and strategic framework that governs disaster risk reduction and emergency management. The most important in this respect is the new Law on Disaster Risk Reduction and Emergency Management (the Law) that was adopted in November 2018. There are however also laws from different sectors relevant to disaster risk reduction and emergency management such as: the Law on Reconstruction following Natural or Other Hazards, Law on Fire Protection, Law on Voluntary Fire-Fighting Service, Law on Critical Infrastructure, Law on Defence, Law on Water Management, Law on Meteorological and Hydrological Activity, Law on Protection from Hail, Law on Water, Law on Environmental Protection, Law on Protection of Population from Infectious Diseases, Law on Forests etc. Under overall coordination by SEM each ministry works to incorporate preventive measures into the specific legislation for which it is responsible.

The new Law on Disaster Risk Reduction and Emergency Management is based on the Sendai Framework for Disaster Risk Reduction and puts a strong emphasis on prevention along with preparedness and response in line with the latest developments within EU. The Law is comprehensive, providing overall framework for risk assessments, prevention and preparedness plans and strategic plans, response operations, penalties, etc. The responsibilities of and cooperation among all entities and resources of the DRR and emergency management system are detailed within the Law. Emergency response operations, requirements and capacities are representing largest part of the Law. The Law also defines a National DRR Platform that passes official conclusions and recommendations, which carry legal weight. However, the 43 bylaws that need to accompany the Law have not been developed yet.

The Law on Reconstruction following Natural and Other Hazards regulates recovery phase by defining the procedure of reconstruction and aid allocation to the citizens and business entities which have sustained pecuniary damages due to natural and other hazards. Importantly this law establishes Public Investment Management Office (PIMO).

The Republic of Serbia also signed and ratified the most important international frameworks and agreements in this area such as the Sendai Framework for Disaster Risk Reduction and the Paris Agreement. Serbia ratified the Paris Agreement in 2017 with the Ministry of Environmental Protection (MEP) responsible for its implementation. The Law on Climate Change and National Adaptation Plan were adopted and local adaptation plans are already being drafted in some local governments.

Serbia is a Participating State of the EU Civil Protection Mechanism (EUCPM) which entails certain obligations as well as rights stemming from EUCPM related acquis. The overall objective of the EU Civil Protection Mechanism is to strengthen cooperation between EU Member States, the 6 Participating States and the UK, in the field of civil protection and promote solidarity. Through the Mechanism, the European Commission plays a key role in coordinating the response to disasters in Europe and beyond and contributes to at least 75% of the transport and/or operational costs of deployments. The European Union lays down a number of directives, decisions, guidelines and standards that Member States and candidate countries should implement in order to harmonize legal and institutional framework with other Member States and thus achieve mutual compatibility required for the overall functioning of the EUCPM.

► Risk Assessments:

The Law on Disaster Risk Reduction and Emergency Management regulates risk assessment process, prescribing that each level of government is required to develop risk assessment and update it every three years and also when additionally required. Entities of special importance for protection and rescue and other relevant entities (such as company units providing critical infrastructure, healthcare facilities, schools, etc.) are also required to develop relevant risk assessments. Risk assessments are prepared by companies and other legal entities authorized by the MoI and approved by the MoI.

For the coordination of development of the National Disaster Risk Assessment (NDRA) the deputy prime minister and the Minister of the Interior formed the main working group made of representatives of the line ministries and other relevant organizations for these purposes. For each risk, working group is created with task to develop risk assessment for that specific risk. As part of this process, so far, 11 hazards have been identified and the working groups have produced 27 risk scenarios, of which 10 have been deemed unacceptable.

At the local level, 84 out of 174 local self-government units have carried out a risk assessment, 76 of which have been approved.

The Law also defines the establishment of the Disaster Risk Register containing relevant data in respect of risk. The law prescribes the content, the manner of establishment and the maintenance of the Risk Register, and tasks the SEM with the coordination of data collection. It also obliges all the relevant ministries and stakeholders to provide their data and to keep them up to date. The Risk Register is still not in the development phase. The Republic Geodetic Authority (RGA) will have the role of establishing and maintaining the technical infrastructure for access and use of data from the Risk Register, following the regulations governing the area of national geospatial data infrastructure.

In Serbia, the Desinventar database has been functioning for many years which represents an important factor in the recoding of disaster loss data in accordance with UNDRR requirements and is an important starting point for meeting EU requirements in recording loss data.

Decision No 1313/2013/EU on a Union Civil Protection Mechanism calls participating states to develop risk assessments periodically (by 22 December 2015 and every three years thereafter) and make a summary of their National Risk Assessment (NRA) available to the European Commission every three years. In order to reach a common understanding among stakeholders of the risks faced in a country, NRAs identify and assess natural and man-made disaster risks that require a response at national or supra-national level. The aim of the periodic reporting is to promote an effective and coherent approach to the prevention of and preparedness for disasters by sharing non-sensitive risk information and best practices within the Union Mechanism.

In order to facilitate Member States' actions in these areas, the Commission has developed the "EU Risk Assessment and mapping guidelines for disaster risk management" in a concerted action with Member States to ensure better comparability between methods and results.

► Sectoral Risk Assessments:

After the devastating flooding of 2014, the Water Law was amended to include several articles addressing flood risk and other potential threats arising from water. Currently a new Water Law is in development that will include the entire principle of the EU Floods Directive.

In 2012, the Preliminary Flood Risk Assessment including only fluvial floods was completed in accordance with EU Flood directive. It identified 99 Areas of Potentially Significant Flood Risk. 27 of the 99 defined Areas of Potentially Significant Flood Risk (APSFR) are already mapped within the framework of several different projects through different methodologies. An updated version of the Preliminary Flood Risk Assessment is in preparation as well as preparation of flood hazard and flood risk maps. Based on these hazard and risk maps the Flood Risk Management Plan will be prepared.

The primary law for the protection of forestry is the Law on Forest. Different methodologies exist for forest fire risk related to the preparation of the Forest Management Plan, which contains mitigation actions. The Forest Fires Protection Plan has been implemented and already approved by the SEM. Each forest should also have a fire protection plan.

One of the most important hazards for Serbia is drought which, in particular, affects the agriculture sector. The Republic Hydrometeorological Service of Serbia (RHMS) has conducted a complete and detailed risk assessment and analysis for drought, providing a risk matrix with the most probable and worst scenarios. Nevertheless, as of May 2019, the impacts of climate change have not yet been incorporated into the risk assessment.

The Seismological Survey of Serbia produces earthquake hazard maps for Serbia. An assessment of the vulnerability of buildings was performed in 2017 using indirect data, according to the results of the last census in 2011.

Serbia has about 110 Seveso facilities that are required to prepare a Safety Report and a Plan of Accident Protection, or an Accident Prevention Policy. These documents are approved by the Ministry of Environmental Protection (MEP). The MEP is currently preparing the Law on the Control of Major Accident Hazards Involving Dangerous Substances for the full transposition of the EU Seveso III Directive. The Ministry of Interior, Sector for Emergency Situations, is the competent authority for the prevention of accidents with hazardous materials within non-seveso establishments.

The assessment of landslide risk and development of geological hazard and risk maps are responsibility of the State Geological Survey.

► Protection and Rescue Plans:

The Law on Disaster Risk Reduction and Emergency Management prescribes the development of a Disaster Risk Reduction Plan and Protection and Rescue Plan for all governmental levels. In addition, certain facilities need to develop protection External Accident Plans. All these plans are to be based on risk assessments and be regularly updated. Disaster Risk Reduction Plans contain preventive, organizational, technical, financial and similar measures aimed at reducing risk of disaster. Protection and Rescue Plans and External Accident Plans should comprise the following: early warning and preparedness, mobilisation and activation, protection and rescue by type of hazard, civil protection measures and use of forces and objects for protection and rescue. The emergency situation headquarters reviews protection and rescue plans and other planning documents and provides recommendations for improvement, which ensures broad stakeholder involvement. The National Protection and Rescue Plan is to be passed by the government, the protection and rescue plans at the provincial and local levels are to be approved by the MoI and the external accident plans are to be adopted by the local self-government units.

The National Protection and Rescue Plan is still in preparation and 15 out of 174 local self-government units have developed a protection and rescue plan, of which 10 have been approved. The Ministry of Health is currently developing its Emergency Response Plan.

With support of PIMO, the National Disaster Risk Management Program (NDRMP) and the action plan for its implementation for the 2016-2020 period were developed in 2015. The action plan contains short-, medium- and long-term activities, all with clear goals, budgets, targets, indicators and time frames.

► Analysis of national policy and legal framework:

As mentioned, the European Union lays down a number of directives, decisions, guidelines and standards in the area of Civil Protection. Member States and candidate countries should adopt and implement these instruments in order to harmonize their legal and institutional framework with other Member States. This harmonization is the basis for full functioning and further development of EUCPM. Some of the most important EU directives, decisions and guidelines that have been adopted in the past in terms of protection against major accidents are:

- Decision N°1313/2013/EU on a Union Civil Protection Mechanism
- Seveso III Directive
- Directive (91/396 / EEC) introducing a unified emergency number 112
- Directive (2008/114 / EC) on the identification and designation of European Critical Infrastructure (ECI) and the assessment of the need to improve their protection
- Commission Decision 2010/481/EU on composition and capacities of EUCPM modules
- EU Host Nation Support Guidelines 2012
- EU Risk Assessment and mapping guidelines for disaster risk management
- Council Decision 87/600 / Euratom (Annex 1) applies to all EU participating countries and concerns the establishment of a system for the rapid exchange of information on radiological hazards (ECURIE).

It is obvious that Serbia has made important steps forward when it comes to legislation and the formulation of a strategic framework for disaster risk reduction and emergency management. As a Participating State within the UCPM, Serbia is fully committed to EU values and goals concerning cooperation and mutual assistance within this EU program. The system is based on a distribution of competences in relation to the adoption of three main policy documents: Risk Assessments, Disaster Risk Reduction Plan and Protection and Rescue Plans. Each level of government is expected to develop these documents and this approach seems to tackle the issue of disaster risk governance from the right perspective and also aligns the legislation to the European Union civil protection Mechanism legislative provisions on prevention. However, further steps are needed for full alignment with requirements of the EUCPM and EU acquis and full development of the efficient and functional system.

Decision N°1313/2013/EU on a Union Civil Protection Mechanism requires excellent cooperation and coordination of EUCPM between Member States. This is first of all based on good cooperation and a robust system within Member States themselves.

In this respect, Serbia's new legislation is comprehensive, puts emphasis on disaster prevention and is aligned with international frameworks, however it requires further simplification with clearer roles and responsibilities among the different civil protection actors and across administrative levels.

► Recommendations:

- Serbia should transpose into its legislation the relevant EU Directives and Decisions (Decision N°1313/2013/EU, Seveso III Directive, etc.) listed above. Some actions in this sense are already on-going (Seveso III Directive) and should be completed. This is a very important overall recommendation that would provide a strong basis for full alignment with EU civil protection related acquis.
- The new Law on Disaster Risk Reduction and Emergency Management should further elaborate the functioning of the subsidiarity principle as an important principle for the functioning of the system. This would mean finding a clear balance between the distribution of competences and tasks among the different levels of government and the assignment of adequate financial resources. Certain types of disasters can be faced with ordinary powers at the local level, and some need to be faced in a coordinated manner by several administrative units and operational forces across different administrative levels. A clearer definition in this respect would allow a clearer distribution of competences and responsibilities across different levels of government in case of accident and would provide further clearance for the concrete implementation of subsidiarity principle.
- The matter of the organization of civil protection operational units should be reviewed and harmonized with a distribution of competences among the different levels of government. Furthermore, in order to gradually approximate relevant entity level legislation to the Union Civil Protection Mechanism Decision, it is advised that a reference in the Law to the European classification of civil protection module and response capacities be made while the details on the organization of the civil protection units should be regulated by bylaws and/or operational procedures.
- The conscription-based system for protection and rescue defined in the Law appears obsolete nowadays if we look at the most common approaches in Europe on this matter. It is therefore suggested to progressively move away

from such a conscription-based system and to invest more resources, in the medium and long run, on a system that would involve citizens in the protection and rescue activities exclusively on the basis of voluntary participation by building a strong volunteers-based system accompanied by a set of protective measures for the volunteers.

- Although the EU Host Nation Support Guidelines (EU HNSG) are of a non-binding nature, Participating States are encouraged to apply them during EU Civil Protection Mechanism operations inside EU and when possible in case of bilateral assistance from an EU or non-EU country. Non-EU states are encouraged to take the EU HNSG into account when they request and receive international assistance via the EU Civil Protection Mechanism. Host Nation Support implies all actions undertaken in the preparedness phase and the disaster response management by a Participating State, receiving or sending assistance, or the Commission, in order to remove as much as possible any foreseeable obstacle to international assistance so as to ensure that disaster response operations proceed smoothly. It also includes the support that Participating States can provide to facilitate international assistance transiting through their territory by land, sea, or air. Serbia should fully align itself with EU Host Nation Support Guidelines.
- Serbia should create all prerequisites for the full establishment and functioning of the European unified emergency number 112 including development and adoption of an Ordinance on the single European emergency number.
- To complete a legal and strategic framework it is required to finalize development and adoption of 43 bylaws as well as Risk Assessments, the Disaster Risk Reduction Plan and Protection and Rescue Plans at all levels of government and ensure their regular update including the development of National Protection and Rescue Plan and The Risk Register.
- In order to facilitate Member States' actions for risk assessments, the Commission developed the "EU Risk Assessment and mapping guidelines for disaster risk management" in a concerted action with Member States to ensure better comparability between methods and results. Serbia should align its methodologies for risk assessments with these EU guidelines.
- The collaboration between the Republic Geodetic Authority (RGA) and the SEM should be strengthened in order to accelerate the process of establish-

ing and defining the requirements of the Risk Register and to define the technical infrastructure. In accordance with EU INSPIRA all spatial data should be set in one place. Also, Serbia should follow and align itself with developments related to The Risk Data Hub initiative of the Disaster Risk Management Knowledge Centre (DRMKC) that consists of a publicly available web-GIS platform intended to improve the access and sharing of curated European-wide risk data and methodologies for fostering DRM related actions. It consists of multiple steps, including the definition of the type of analysis to be presented, the design of methodologies to compute data needed, the design of the database architecture and software tools and, finally, the development of software.

- The key role of the scientific community (for example Universities, hydro-geological institutes and research centers on different hazards) in supporting disaster risk management is strongly underestimated in the Law. It is advised to include specific provisions aimed at recognizing the role of the scientific community within the protection and rescue and civil protection system. The basic provisions that could find space in the Law should then be further implemented with bylaws. In this respect EU Science for Policy Handbook on evidence based policy should be consulted as well as the EU Civil Protection Knowledge Network that is currently under development. The Knowledge Network will support experts, practitioners, policy-makers, researchers, trainers and volunteers at every stage of the disaster management cycle through networking, partnerships, collaborative opportunities, and access to expertise and good practices. It will facilitate the active participation of knowledge holders and foster an inclusive approach to ensure that the Knowledge Network addresses key concerns and needs of its members.
- The National Disaster Risk Management Program is expiring and a new strategy and action plan for the next four-year period should be adopted.
- Methodology prescribing the content of the Protection and Rescue plans should contain instructions on the clear roles and responsibilities of all actors, capacities, coordination, information management and communication as well as risk monitoring, early warning and operation actions. They should define mechanisms of coordination and their interaction. Risk monitoring indicators, alert levels, appropriate early action, and response operations defined in the plans should draw up a system that allows for gradual augmentation of response: from everyday emergencies to large-scale disasters requiring

international resources. Within such a system, risk monitoring indicators trigger predefined alert levels and activate plans. Within each plan at each level, there should be predetermined thresholds (such as area, objects or population affected) linked to precisely defined resources to be deployed (as specific as possible, e.g. what type of unit from which area). It would be beneficial to develop a draft protection and rescue plan template in order to help the provincial and local levels draft their plans and supplement the plans with easy-to-use and adaptable standard operating procedures, checklists and templates for all relevant stakeholders.

- Serbia should continue working on the full implementation of the EU Floods Directive. In particular by finalizing the updating of a Preliminary Flood Risk Assessment and preparation of flood hazard and flood risk maps that will enable creation of Risk Management Plan
- The Law on the Control of Major Accident Hazards Involving Dangerous Substances that is intended to fully transform the EU Seveso III Directive should be finalized and adopted.
- Current funding represents a big obstacle in achieving an efficient and fully functional disaster risk reduction and emergency management system. The challenge is both legislative provisions on funding but also lack of funding. All levels lack funds to secure implementation of all the responsibilities prescribed by law and in this respect, it should consider establishing legal and financial solutions to face extraordinary situations. This would mean establishing a two-track system: one track for ordinary spending and development of the system, one track to finance extraordinary situations after declaration of state of emergency. Additionally, it is necessary to find solutions to secure a sufficient budget and qualified personnel to manage, in a sustainable way, prevention, reconstruction and other DRM activities.
- Consideration should be given to regulating the relationship between the SEM and the PIMO which would provide the safeguard to a good working relationship between the PIMO and the SEM, for example through a memorandum of understanding or a steering committee.

3.2. Institutional arrangements and capacities

Overview of overall disaster risk reduction and emergency management institutional arrangement:

The disaster risk reduction and emergency management system in Serbia consists of a large number of stakeholders responsible for different segments of the system. This is in line with the nature of disaster risk reduction and emergency management. However, in order for a system that entails numerous stakeholders, to be efficient, effective and perform its function, in this case the protection of people and livelihoods, it is essential that roles for each stakeholder are clear, that cooperation among stakeholders is smooth and that institutions possess capacities that match the duties they have. Such systems are proven as best practices for fulfilment of disaster risk reduction and emergency management functions in Europe but also throughout the world. Therefore, the European Civil Protection Mechanism, which is based on the good cooperation of various stakeholders, urges Member States to invest in the continuous building of efficient coordination and capacities of the involved institutions. Strong systems and institutions of Member States make strong and efficient European Civil Protection Mechanism.

As mentioned, the disaster risk reduction and emergency management system in Serbia consists of a large number of stakeholders including: the Ministry of Interior/Sector for Emergency Management, the Public Investment Management Office, the Ministry of Mining and Energy/Serbia Geological Institute, the Ministry of Agriculture, the Forestry and Water Management/Republic Water Directorate, the Ministry of Environmental Protection, the Ministry of Health, the Ministry of Agriculture, Forestry and Water Management, the Ministry of Construction, Transport and Infrastructure, the Ministry of Defence, the Seismological Institute of Serbia, the Republic Hydro- meteorological Institute of Serbia, the Serbian Radiation and Nuclear Safety and Security Directorate (SRBATOM), academia, civil society organizations, private companies and citizens.

► Sector for emergency management and operational capacities:

The Sector for Emergency Management, part of the Ministry of Interior, is in charge of disaster risk reduction and emergency management. The SEM coordinates prevention, preparedness and response to disasters across all levels of government (municipality, city, district, national) and is de facto implementing the principle of subsidiarity. To ensure this, the SEM has offices and representatives at municipal, city, district and national level and operational capacities that comprise approximately 4,000 profession-

als, of which 3,300 are specialized fire and rescue units and emergency first responders. Based on the principle of subsidiarity, when the SEM cannot cope adequately, other resources of the national protection and rescue system should be activated, including equipment and personnel of specialized or general-purpose civil protection units as well as personnel, vehicles, construction machinery and specialized police equipment, specialized companies or armed forces. They are also supported by the Red Cross of Serbia, the Mountain Rescue Service of Serbia and other humanitarian organizations and associations and civil society organizations. All citizens are obliged to perform the tasks of protection and rescue when required.

Specialized and general civil protection units are established, equipped, and trained as operational forces for the execution of civil protection measures by local self-government units. If a local self-government unit has a voluntary firefighters association on its territory, which is financed by the local self-government unit, the local self-government is then exempted from forming a general civil protection unit.

Specialized civil protection units are formed for the following operations: fire protection, water rescue, inaccessible terrain, first aid, unexploded ordnance detection and destruction, RHB protection, urban search and rescue, monitoring, alerting, telecommunications and care. General-purpose civil protection units are established for simpler tasks such as protection and rescue, including: helping to construct and reinforce dams to protect against floods (filling and setting sandbags), snow clearing, helping to sanitize terrain and facilities, helping to extinguish open fires, clearing debris.

In addition to professional firefighters, there are also several volunteer fire-fighting units throughout the Republic of Serbia.

Additionally, companies and other legal entities in accordance with the assessment of risks that represent a potential threat to the territory (e.g. Seveso establishments) have to form specialized civil protection unit and/or industrial fire-fighting units.

► **Emergency Management Headquarters:**

The National Emergency Management Headquarters (NEMH) is an expert and operational state body formed to monitor disaster risk reduction activities and manage emergency response. Given its importance, the commander-in-chief of the NEMH is the minister of the interior, while the head of the NEMH is the head of the SEM. The other members of the NEMH are ministers or representatives of all relevant state min-

istries, institutions and organizations in the field of: administration and local self-government, defence, health, agriculture, water management and forestry, labor and social policies and environmental protection, foreign affairs, transport and telecommunications, construction, mining, energy, information, meteorology, seismology, hydrometeorology, finance, trade and service as well as representatives of the Red Cross of Serbia, the Mountain Rescue Service of Serbia, public enterprises, companies and other legal entities, humanitarian organizations and associations of citizens. Regular meetings are convened three to four times per year, while ad hoc operational meetings are arranged before and sometimes during emergencies.

Its main functions relate to the management and coordination of entities of disaster risk reduction and emergency management and the implementation of measures and tasks related to civil protection and in particular during emergency response. It has the power to request engagement and use of any disaster risk reduction and emergency management force in the country as well as dismiss lower level emergency level headquarters. Additionally, the NEMH reviews strategic documents such as risk assessments, plans and strategies. The SEM performs the professional and administrative–technical tasks necessary for the work of the NEMH. In 2011, the NEMH was incorporated into the National Platform for Disaster Risk Reduction of Serbia.

Similar emergency headquarters are established at lower levels of government (municipal, city, district and provincial). They also play a primary role in prevention and preparedness and during major emergencies and disasters affecting their respective area. Local level emergency headquarters are led by the local mayor with support from the regional SEM office.

In a large-scale event that affects several municipalities or districts, the province, district or even national level will step in to coordinate emergency management. At all levels, there is the option to officially declare an emergency situation, which provides the mandate to take special measures or add additional resources. In effect, it means that capacities can be redistributed among different parts of the affected area.

► **Public Investment Management Office (PIMO):**

The Public Investment Management Office was established during early the recovery period following the Ma The PIMO identifies recovery needs through needs assessments, mobilizing resources, it coordinates state and international aid and other involved organizations, and implements recovery actions through procurement of

goods and services. Additionally, the PIMO is in charge of coordinating all authorities and other institutions in the Republic of Serbia in the implementation of the National Disaster Risk Management Program (NDRMP), adopted by the government in December 2014. In 2017, the government adopted the PIMO's Action Plan for the Implementation of the NDRMP for the period 2017-2020; the action plan is fully aligned with the Sendai Framework for the period 2015-2030.

► Standing Conference of Towns and Municipalities:

The Standing Conference of Towns and Municipalities (SCTM) is a national association of local authorities. The SCTM coordinates the establishment of river basin protocols in cooperation with towns and municipalities. Overall, four protocols have been signed so far. Two are among the 26 towns and municipalities belonging to two river basins: Zapadna Morava and Kolubara and other two are among the 20 towns and municipalities from Velika Morava and Upper Danube Banat. Additionally, the Drina River Basin signed a protocol with 10 municipalities in 2018. There are 10 river basins in Serbia and all 10 protocols are expected to be signed by the end of 2020.

► Early Warning and Emergency Alerting:

The early warning system entails the cooperation of various institution, from different levels of government to hydrometeorological services, water agencies to seismological institutions, depending on the type of hazard. For flooding, the Republic Hydrometeorological Service of Serbia (RHMS) issues meteorological and hydrological warnings, ranging from early announcements to emergency alerts. Alerts are distributed via email, SMS and on the RHMS website. Part of the RHMS website is the meteoalarm.rs website, developed as part of the European meteoalarm.eu project. The criteria for issuing an alert is predefined and in line with neighboring countries.

For earthquakes, the Institute of Seismology of Serbia produces reference hazard maps for the entire Serbian territory and manages the real-time seismological network, which automatically relays information about earthquakes over Magnitude 5 on the Richter scale to the NEMH.

Warnings are collected at the NEMH, and from there forwarded to the respective local entities activating the sirens. A few years ago, responsibility for the sirens was delegated to the municipalities who should develop an acoustic study on the coverage of the public warning system for their territory by 2021 and install and maintain sirens accordingly.

The RHMSS provides the fire weather index, used to identify meteorological conditions in which forest fires can develop. However, this index does not take into account other important parameters (such as vegetation type) and it is mainly used as a starting point in a forecasting system. Peers suggest improving the fire early warning system by developing a more sophisticated index and using the Copernicus European Forest Fire Information System.

► Institutions responsible for risk assessments:

As mentioned, each level of government should develop risk assessments for their own respective area. Also, entities of special importance for protection and rescue should have their own risk assessments. These risk assessments can be prepared by companies and other legal entities authorized by the Ministry of Interior, following strict requirements and training stipulated in the Law on Disaster Risk Reduction and Emergency Management.

To support municipalities in assessing disaster risk and rescue planning, the Disaster Risk Information System (DRIS) is being developed. The DRIS is a digital database that enables the collection, in one place, of data on potential risks from local self-governments.

Different institutions are additionally responsible for scientific sectoral risk assessments. For the flood risk of major rivers, the primary responsibility lies with the Ministry of Agriculture, Forestry and Water Management in the form of Republic Water Directorates (RWD), for risk assessment on forest fires to the Ministry of Agriculture, Forestry and Water Management – Department of Forestry. The RHMSS provides the risk assessments for all the relevant meteorological hazards: among others, extreme temperatures, drought, hail, storm and heavy rain, The RHMSS has conducted a complete and detailed risk assessment and analysis for drought, providing a risk matrix with the most probable and worst scenarios. The Seismological Survey of Serbia is the lead institute responsible for evaluating seismic risks.

► Analysis of institutional arrangements and capacities:

As presented, the disaster risk reduction and emergency management system in Serbia is a comprehensive system involving numerous institutions. And while efforts and commitments by all these stakeholders are evident, shortcomings are preventing full operationalization of the system. Functioning and collaboration are often dependent on the competencies and dedication of individuals, rather than the result of an effective long-

term policy based on an institutional approach. The SEM faces challenges in terms of funding, personnel and premises. The current shortage of staff and funding arrangements do not allow for the planning and flexibility required for all SEM tasks and responsibilities. Municipalities, that have a long list of responsibilities related to prevention and also response to disasters lack funding, personnel, equipment, expertise, training. Local self-governments dedicate only 0.01-1.7 % funding from their budget to DRR and emergency management. These deficiencies represent a serious issue in the functioning of the whole disaster risk reduction and emergency management system.

Everyday response capacities are limited and overstretched even for everyday response. Although, some improvement in capacity has been made in recent years mainly through international projects, an already overstretched system is even further challenged during disasters. There are currently 3,300 professional firefighters and plan is to increase this number by 1,200 more. There are 173 specialized civil protection units with around 4,400 members, of which only 1,900 members have completed their training. Generally, there is a lack of voluntary personnel due to limited reimbursement of employers and insurance problems.

Voluntary fire departments are not available throughout the country. Specialized civil protection units are limited to a support role, joining the existing specialised teams to increase their numbers. Medical response capacities are overstretched during disasters due to there being no specific preclinical mass casualty incident structures. The national Red Cross society of Serbia seems to have good capacities with over 7,500 active volunteers were used in the 2014 floods for water pumping and technical aid, water rescue, evacuation, shelter, global water sanitation and hygiene, first aid, relief goods and tracing.

These deficient capacities jeopardize the functioning of the system which is often visible during disasters that go beyond everyday response. Due to lack of trained personnel in larger disasters response personnel may then work on a 24/7 basis. For longer-lasting disasters, this is clearly unsustainable. These issues should be tackled though building stronger voluntary system or creation of regional reserves of ordinary fire and rescue personnel to be deployed to other parts of the country. This lack of elasticity in the system diminishes the ability to scale up response levels.

As mentioned, a general lack of training is evident for both specialized civil protection units as well as for general civil protection units and volunteers. Training opportunities are limited and there is no strong basis for a training system. In the Law on Disaster

Risk Reduction and Emergency Management, the establishment of a National Training Centre was envisaged, however the Center has still not been established. In the meantime, an overall lack of training facilities, trainers and funding affect capabilities of the responders. Current training resources are used for the training of firefighters and then to civil protection volunteers.

For the early warning system to fully function, there seems to be relatively limited forecasting capability available, except for flooding. Further investment is needed in equipment, human capacities and IT tools of both the Hydrometeorological Services and the Institute of Seismology. Although municipalities are to develop an acoustic study on the coverage of the public warning system for their territory by 2021 and install and maintain sirens accordingly, funds have not been secured. Therefore, the public siren system is incomplete in particular in many rural municipalities. The Law on Disaster Risk Reduction and Emergency Management prescribes the creation of the European emergency number 112. However, there is still no functioning Centre to receive incoming emergency calls via the emergency number 112 which is one of the EU requirements.

Municipalities struggle with the development of strategic documents (risk assessments, disaster risk reduction plans, protection and rescue plans) required by law and needed for the overall functioning of the system.

There are good examples of data sharing and communication. However, despite a number of portals and systems for information management, data sharing remains a challenge.

The main improvements throughout the years since the establishment of the EUCPM relate to a better coordination of civil response forces. In this respect, the European Civil Protection Pool (ECP) was established to advance European cooperation in civil protection and enable a faster, better-coordinated and more effective European response to man-made disasters and natural hazards. The Pool brings together resources from 25 Member States and Participating States, ready for deployment to a disaster zone at short notice. These resources can be rescue or medical teams, experts, specialised equipment or transportation. Whenever a disaster strikes and a request for assistance via the EU Civil Protection Mechanism is received, assistance is drawn from this Pool. In 2019, the EU reinforced and strengthened components of its disaster risk management by further upgrading the EU Civil Protection Mechanism.

The latest element introduced - rescEU - has the objective of enhancing both the protection of citizens from disasters and the management of emerging risks. In addition,

rescEU establishes a new European reserve of resources (the 'rescEU reserve') which includes a fleet of firefighting planes and helicopters, medical evacuation planes, as well as a stockpile of medical equipment and field hospitals that can respond to health emergencies, and chemical, biological, radiological, and nuclear incidents. As of today, Serbia has not offered any capacity to the ECPP nor to rescEU.

► Recommendations:

- The issue of funding needed for the overall functioning of the system should be tackled as a priority. This would entail securing sufficient funds for the functioning of the SEM, a training system, response units, etc.
- Serbia as an EUCPM Member State has opportunities to access more EU funding opportunities for building response capacities (International Search and Rescue Advisory Group certification, training of specialised teams or other capacity-building measures).
- It is important to continue building response capacities across the board and also building a stronger volunteer system. Develop a response capacity that allows for gradual augmentation of response, from everyday emergencies to full-scale disasters and adapt funding and capacity building accordingly. It is also advisable to create regional reserves of ordinary fire and rescue capacity to be deployed to other parts of the country and consider blending reserve teams with voluntary fire departments.
- Serbia should build its civil protection capacities in line with the Union Civil Protection Mechanism Decision on the classification of civil protection modules and response capacities and subsequently consider making its capacities available to the ECPP or to rescEU.
- Existing volunteer systems should be promoted and new approaches to volunteer contribution in civil protection measures should be examined. All civil protection stakeholders and the civil protection administrations at all levels of governance should aim to recruit new volunteers to serve their communities.
- Serbia should further strengthen inspection capacities that are an important wheel in ensuring vertical and horizontal functioning of the system.
- Serbia should increase emergency medical support (EMS) capacity and estab-

lish systematic cooperation between fire and EMS regarding the development of matching standard operating procedures, training, etc.

- Serbia should establish the National Training Centre and invest in building training capacities that would be used by all stakeholders throughout the country.
- To build inter-institutional cooperation it is important to design fixed structures to facilitate communication between different levels of government as well as between stakeholders on the same level and to establish a formal relationship among different national and local administrations and the SEM for information management and sharing.
- Further develop methodologies for prevention and preparedness plans as well as for risk assessments in line with EU guidelines for risk assessments. In particular, put emphasis on multi-risk analysis and climate change induced risks. Also, integrate the cascading effect as part of multi-risk analysis including critical structures failures, Natech risks of large industrial Seveso-type facilities, power plants and other critical infrastructure and cascading effects resulting from pandemics. The development of templates and guidelines is recommended as well as training on risk assessments especially for lower levels of government.
- Strengthen the participation of the scientific community as well as civil society in overall disaster risk reduction and emergency management system and in particular in the area of risk assessment and risk management planning.
- Invest in building awareness on preventive actions especially for local communities and citizens.
- Further investment in structural and non-structural disaster prevention measures in accordance with Disaster Risk Reduction Plans should be ensured.

3.3. International cooperation

International cooperation is an important aspect of disaster risk reduction and emergency management in any country. Serbia has been an EUCPM Participating State since 2015. The EUCP is an operational framework that fosters the efficient mobilization of assistance for disaster management but also the strengthening of prevention and pre-

paredness. Solidarity and cooperation are essential principles of this framework. The CPM became a key tool in ensuring immediate and coordinated response from Member States to the most serious disasters occurring both inside and outside the EU.

Participating States of the EUCPM are encouraged to cooperate and conclude bilateral agreements with other states and international organizations. Serbia has wide cooperation with other states as well as relevant organizations. Cooperation agreements in the field of emergency situations have been signed with: Ukraine (2004), Russian Federation (2009), Bosnia and Herzegovina (2010), Montenegro (2010), Azerbaijan (2011), Slovakia (2011), Hungary (2013), Croatia (2014), Slovenia (2015), Bulgaria (2019). Serbia is also part of the Disaster Preparedness and Prevention Initiative for South Eastern Europe.

Different institutions are also collaborating, on a horizontal level, with similar institutions from the region or are part of international organizations. All institutions involved in the early warning system in Serbia actively communicate with similar services in other countries via official channels. This cross-border cooperation facilitates risk monitoring and assessments, early warning and disaster response.

Through international cooperation Serbia is participating in different civil protection related projects, mainly financed by the EU, OSCE, UNICEF, UNDP, World Bank, Switzerland, Japan or the Disaster prevention and preparedness initiative for South-eastern Europe (DPPI SEE). Different international training and exercises have been conducted in Serbia and civil protection professionals from Serbia participate on a regular basis in international training and exercises (e.g. NATO, EU, DPPI). Still it is not clear how these different projects and international engagement experience is transferred to and implemented into the disaster risk reduction and emergency management of Serbia.

However, this rich international cooperation represents a true opportunity for Serbia to learn from other civil protection systems and secure means for addressing deficiencies in Serbia's system. To ensure knowledge transfer from this international cooperation.

4. CONCLUSIONS AND KEY RECOMMENDATIONS

Serbia is on the right path to building a strong disaster risk reduction and emergency management system in line with EU requirements. This review compared the current strategic and legislative framework of Serbia with EU requirements and provided detailed recommendations for improvement.

Below is a summary of the main recommendations organized as short, mid and long term recommendations:

► SHORT-TERM:

- Transpose into its legislation the relevant EU Directives and Decisions (Decision N°1313/2013/EU, Seveso III Directive, etc.) listed above. This is a very important overall recommendation that would provide a strong basis for full alignment with EU civil protection related acquis.
- Fully align itself with EU Host Nation Support Guidelines.
- Create all prerequisites for the full establishment and functioning of the European unified emergency number 112 including development and adoption of Ordinance on the single European emergency number
- Align methodologies for risk assessments with the "EU Risk Assessment and mapping guidelines for disaster risk management". In particular put emphasis on a multi-risk analysis and climate change induced risks. Also, integrate the cascading effect as part of multi-risk analysis including critical structures failures, Natech risks of large industrial Seveso-type facilities, power plants and other critical infrastructure and cascading effects resulting from pandemics
- Develop a new strategy and action plan for the next four-year period in light of the fact that the National Disaster Risk Management Program is expiring .

- Adopt and finalize the Law on the Control of Major Accident Hazards Involving Dangerous Substances that is intended to fully transform the EU Seveso III Directive.
- Update methodology prescribing the content of the Protection and Rescue plans outlining instructions on the clear roles and responsibilities of all actors, capacities, coordination, information management and communication as well as risk monitoring, early warning and operation actions.

► MID-TERM:

- Finalize development and adoption of 43 bylaws as well as Risk Assessments, the Disaster Risk Reduction Plan and Protection and Rescue Plans at all levels of government and ensure their regular update including the development of National Protection and Rescue Plan and The Risk Register.
- Build civil protection capacities in line with the Union Civil Protection Mechanism Decision on classification of civil protection modules and response capacities and subsequently consider making its capacities available to the ECPP or to rescEU.
- Update the current Law on Disaster Risk Reduction and Emergency Management and to further elaborate the functioning of the subsidiarity principle and review the organization of civil protection operational having in mind distribution of competences among the different levels of government.
- Examine new approaches to volunteer contribution in civil protection measures and promote the existing volunteer systems. .
- Further strengthen inspection capacities, emergency medical support capacities, build inter-institutional cooperation and invest in building awareness on preventive actions especially for local communities and citizens.
- Establish the National Training Centre and invest in building training capacity that would be used by all stakeholders throughout the country.
- Address the issue of funding needed for the overall functioning of the system as a priority. This would entail securing sufficient funds for the functioning of the SEM, training system, response units, etc.

- Continue working on the full implementation of the EU Floods Directive. In particular, finalize the updating of Preliminary Flood Risk Assessment and the preparation of flood hazard and flood risk maps that will enable the creation of a Risk Management Plan.
- Accelerate the process of establishing and defining the requirements of the Risk Register and to define the technical infrastructure aligned with The Risk Data Hub initiative of the Disaster Risk Management Knowledge Centre (DRMKC).

► LONG-TERM:

- Further investment in structural and non-structural disaster prevention measures in accordance with Disaster Risk Reduction Plans.
- The conscription-based system for protection and rescue defined in the Law appears obsolete nowadays if we look at the most common approaches in Europe on this matter. It is therefore suggested to progressively move away from such a conscription-based system and to invest more resources, in the medium and long run, on a system that would involve citizens in the protection and rescue activities exclusively on the basis of voluntary participation by building a strong volunteers-based system accompanied by a set of protective measures for the volunteers.
- Strengthen the participation of scientific community as well as civil society in overall disaster risk reduction and emergency management system and in particular in the area of risk assessment and risk management planning. In this respect, consult the EU Science for Policy Handbook on evidence based policy as well as EU Civil Protection Knowledge Network that is currently under development.