

## Cross-Border Voluntary Network for Disaster Prevention (Hungary-Slovakia)

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### ABSTRACT

Košice (Slovakia) and Miskolc (Hungary) are connected not only by historical, social and cultural roots, but also by common threats (river Hernád, industrial vulnerability, transport of dangerous goods). The European Union's cooperation environment promotes the achievement of interregional goals. The elimination of the border line and the creation of processes and legislation to promote regional territorial cooperation have resulted in a more favorable project environment, and cross-border cooperation between authorities and public administrations at regional and local level has developed rapidly. Practical experience with prevention and similar financial terms and dissemination opportunities is ready to implement cross-border networking and to present results in policy. Creating a cross-border voluntary network supporting disaster prevention and ensuring its sustainable operation cannot be achieved without scientific research, analysis of events, existing infrastructures and needs without a methodological background based on the evaluation of processed information. This article examines areas that present the current environment of the network that it generates, thus indicating the circumstances and sustainability of its operation.

**Keywords:** Cross-border disaster management, preparedness, voluntary network

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### I. INTRODUCTION

Political and economic development requires paradigm shift in the approach of disaster prevention. Prevention is not a narrow professional circle, but an integrated, multifaceted effort in society that cannot be achieved without involvement of civil society and the public, and which must rely on the exercise of a conscious and active citizenship. Involvement of professionals in the decision-making process is an element of democratic government culture and the emergence of local and regional authorities in the political environment ensures the effectiveness and social acceptance of disaster prevention policy. An important element in the policy role of a volunteer network in the field of disaster prevention is the development of awareness of local society. This is a prerequisite for residents to know about the hazards, including all its important parameters. Training, education and information not only develop a culture of emergency behavior, but also the need to protect the built and natural environment and avoid damage. Volunteering does not mean that there is a lack of financial support. The infrastructure, the logistics background, and the satisfaction of individual conscious needs require financial input. The provision of financial resources is

a cornerstone of sustainability, and the implementation of both the budgets of the local governments and the call for EU funds must be taken into account. The disaster prevention clearly shows that the most cost-effective form of defense and its development is not only a national but a European interest. Of course, as the national and European experiences show, the general societal challenge can only be solved on a social level, so the activities of civil society and volunteer organizations, both at national and international level, are indispensable to responsible public and municipal organizations. In order to achieve the principle of subsidiarity, the active role of citizens in this area is also paramount. In a democratic state, citizens have a natural need to define the changes they need in their own environment and to decide independently on issues directly affecting them. Self-defense capabilities and civilian self-help against disasters must be supported by the state and the local government, as these efforts reinforce and extend the authority's protection measures.

In the framework of these principles, we examine the environment of the establishment and operation of the interregional network of disaster management experts and civil society organizations

working in the field of volunteering in Slovakia and Hungary (Košice-Miskolc) in cross-border disaster protection cooperation.

The creation of the network is basically aimed at reducing the risks and preparing people living in a vulnerable area. This is demonstrated by the European Parliament's resolution P7\_TA (2010) 0326 and the Community Communication on the Prevention of Natural Disasters and Man-made Disasters. The document clearly states the need for a concept for the prevention of natural disasters and man-made disasters, which is of paramount importance for the preservation of human communities and material goods as well as the natural and built environment.

### Situation Analysis

The main elements of the cross-border disaster protection network are as follows:

- Legal and operational conditions for prevention
- The protection conditions

#### I.1 The current legal regulation in the interregional cooperation

As a member of the European Union and as part of the disaster affecting our geographic region, the Carpathian Basin, both national and EU legislation and directives should be taken into account as far as the legal background is concerned. Disaster management is a task for the Member States, the European Commission is coordinating at Community level and making decisions in that spirit.

The most important regulators in Hungary<sup>1</sup> and Slovakia<sup>2</sup> are responsible for the protection of disasters, providing a clear legal environment for everyone to protect life and property, to prevent the natural and industrial disasters that threaten the natural and constructed environment.

Hungarian legal regulation has a clear position on this issue: "Disaster prevention is a national matter. The management of defense is a public task"<sup>3</sup>. The Slovak Republic regulates the activities of the national, regional, local level of disaster prevention and determines the participation of natural and legal persons in the norms defined by Civil Protection Act 42/1994: Civil Protection is governed by public law and implemented by ministries, by the centralized administration and

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<sup>1</sup> Hungary's Basic Law (April 25, 2011), CXXVIII of 2011. Act LXXII of 2012. Government Decree 234/2011 (XI. 10), Act CXIII of 2011, Act 290/2011. (XII.22.) Government Decree, 62/2011. (XII.29.) BM decree, 150/2012. (V.15) Government Decision

<sup>2</sup> Constitutional Act No. 227/2002, No. 319/2002, No. 321/2002, No. 570/2005, No. 387/2002, No. 42/1994, No. 129/2002, No. 179/2011, No. 82/1994

<sup>3</sup> Act. CXXVIII. Of 2011 1 § (1)

government bodies, regional and district offices, county authorities, local governments legal and natural persons are responsible for the implement.<sup>4</sup>

The legal environment of the two countries, in terms of prevention, requires the involvement of local governments, thereby guaranteeing the lives of the people living in the area, the security of their property and maintaining the viability of the country.

The fulfillment of the role of disaster management in the society requires the implementation of legal correction adapted to various natural and other changes, so that the legal background of disaster prevention is constantly expanding, changing content.

"The making massive the cross-border co-operations is a major priority for the European Union."<sup>5</sup>

European regional policy uses different types of legal agreements, protocols and contracts to facilitate cross-border activities and the establishment of cross-border structures. The legal framework between the two states provides a coherent framework for the participants of the co-operation, which sets the framework conditions - hence most parties do not have to elaborate most of the rules - while allowing flexibility to adapt the structure to local specifics.

Under the Hungarian-Slovak bilateral agreement, cross-border co-operation involves all joint activities aimed at strengthening and further developing good-neighborly relations between local and regional authorities and public administrations and related bodies.<sup>6</sup>

In Article 1, the parties determine which Hungarian and Slovakian authorities and bodies are covered by the Convention:

- from the Hungarian side, local and county self-governments; administrative body of the capital and the county administrative office;

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<sup>4</sup>The Act of the National Council of the Slovak Republic No 42/1994 Coll. on Civil Protection of the Population, as worded in later amendments, (Consolidation Act No. 47/2012)

<sup>5</sup>dr. Edit Pintér: Results of Empirical Research of Cross-Border Cooperation, Foreign-World, Journal of International Relations, VII. year 2010/4. study [http://epa.oszk.hu/00000/00039/00023/pdf/EPA0003\\_9\\_kulvilag\\_2010\\_04\\_pinter.pdf](http://epa.oszk.hu/00000/00039/00023/pdf/EPA0003_9_kulvilag_2010_04_pinter.pdf)downloaded:22.02.2018

<sup>6</sup>200/2001. (X. 20.) Gov. Decree of the Government of the Republic of Hungary and of the Government of the Slovak Republic concerning the publication of the Convention on Cross-Border Cooperation between Local Governments and Public Authorities, signed at Budapest on 23 April 2001 Article 1 (1)

Under Article 4, the parties are on an equal footing in cross-border cooperation. Under this requirement, each partner must be granted the same conditions as within the country. According to the Convention, the parties support co-operation at all possible levels: national, local and regional self-government interest representation organizations, foundations and other legal entities, non-governmental organizations and non-profit organizations, business enterprises and budgetary institutions. The Hungarian-Slovak Convention also states that the parties will do their utmost to eliminate legal and technical obstacles to cooperation. In the event of significant changes in internal legislation affecting the co-operating parties, they shall immediately inform each other, in particular as regards organizational and competence changes.<sup>7</sup>

Participants of the co-operation will independently design and organize joint tasks to be solved and encourage cross-border links, in particular Euroregions. To achieve this, they build and maintain a direct relationship with each other, and conclude the necessary contracts.<sup>8</sup>

The 212/1997. (XII.1.) Under the Cooperation and Mutual Assistance Convention, assistance and cooperation cover the following areas:

- the joint organization and implementation of preventive measures and the preparation of cooperation plans;
- mutual information on disaster threats and their occurrence;
- disaster recovery;
- civil defense, training of firefighters and other specialists;
- exchanging scientific and technical information and exchanging joint research programs in the area of production and development in relation to the Convention;
- organization and implementation of joint defense and rescue practices.<sup>9</sup>

## I.2 Provision of protection conditions

The most important task of planning is to understand the nature of disasters, understand the likelihood of the risk and create the organizational and operational conditions.

Detection of hazards identifies areas exposed to specific risks while providing basic

<sup>7</sup>Pursuant to Article 2 (3) of the Hungarian-Slovak Convention.

<sup>8</sup>Pursuant to Articles 5 and 7 of the Hungarian-Slovak Convention.

<sup>9</sup>212/1997. (XII.1.) On the promulgation of the Convention on cooperation and mutual assistance in the event of disaster in the Government of the Republic of Hungary and the Government of the Slovak Republic Article 3 (1)

information to the population and provides a valuable management tool for spatial planning authorities.

The European Commission is collecting the methods currently used by the Member States to identify hazards and risks, and then, based on existing Community initiatives, plans to develop guidelines for risk mapping.<sup>10</sup>

The dangers of natural and human activities affecting the given area should be explored and the digital databases available in the area should be explored which serve as a basis for planning prevention activities.

### I.2.1 The Hungarian partner, the Borsod-Abaúj-Zemplén County's vulnerability

Hungary is one of the vulnerable countries in Europe because of its impact on climate change, as the country has the highest ecological vulnerability category. Floods, hot waves, frequent extremes (sudden snowfall) cause every year a critical situation.<sup>11</sup>

Borsod-Abaúj-Zemplén county, one of these regions, lies in the north-eastern part of the country. The county has an area of 7.242,2 km<sup>2</sup>, with a population of 708.371. The population of the county occupies the second place in the counties of Hungary. Part of the settlement structure of Borsod-Abaúj-Zemplén County is dominated by Miskolc and its area, and by the multitude of tiny villages. The number of settlements among the counties is the largest, 358 settlements.

Because of the general geographic position, transport and industrial structure of the county, the population is endangered by the occurrence of natural and industrial disasters affecting the infrastructure differently.

The threat of the Borsod-Abaúj-Zemplén county

Natural threat

- Approximately 70% of the total area of inland water systems is lower than the river flood level (Tisza, Bodrog). The remaining 30% are made up of higher hills. The Borsod-Abaúj-Zemplén County's inland water system is weak, especially due to changes in ownership (interests), so we can expect, the inland water hazards in this area

<sup>10</sup>Global Monitoring for Environment and Security - Communication from the Commission, of 10 November 2005 entitled: "Global Monitoring for Environment and Security (GMES): from concept to reality." [COM(2005) 565 final – Not published in the Official Journal]. - [http://europa.eu/legislation\\_summaries/other/128170\\_en.htm](http://europa.eu/legislation_summaries/other/128170_en.htm) downloaded: 10.11.2017.

<sup>11</sup>Resolution 9/2008 (III.20.) On the National Climate Change Strategy <http://www.complex.hu/kzldat/o08h0029.htm/o08h0029.htm> downloaded: 10.11.2017.

will increase. Out of the 358 settlements, there are 118 settlements, which means that every third can be affected by inland water. The most endangered areas of the county: South Borsod 6000 ha, Taktaköz 6500 ha, Bodroglakó 15000 ha.

- Due to the natural features of the county, it is often necessary to protect the surrounding mountain ranges and coastal pools, floods due to high rains and floods, floods caused by strong floods and local water damage. Small or medium floods every 2-3 years, with significant flooding every 5-6 years, with extreme floods every 10-12 years. Longer flood waves can last up to 5-10 days in the upper section of the river, and the lower section may last up to 50 days. Floods can be caused by the larger rivers (Bódva, Nyógó, Hunters, HejőCsincse, Rima, Hejő, Szarda, Kánya, Hoór, Tardona, Szuha, Bán, Harica, Hangony) The Lázberci, Hámori and Rakaca reservoirs can cause water possible disturbance. The sudden, significant precipitation of rain (within 30-50 mm) mainly affects the settlements of the hilly regions. In recent years, extremes of weather have strengthened, especially abrupt rainfall. As a result, streams flowing through settlements grow in extreme proportions, in a very short time wave floods and directly threaten the population. In the county, the floodplains of the Tisza, Bodrog, Hernád, Sajó and Takta have a total area of 1501 km<sup>2</sup>. Since a significant part of the river basins in the county's natural watercourses is located in Slovakia, their water supply and water abstraction depend mainly on the water management and natural factors of the northern neighboring state.

Name of water-course	Catchment basin (km <sup>2</sup> )			
	Hungary	Slovakia	Ukraine	All
Bodrog	972 km <sup>2</sup>	7 179 km <sup>2</sup>	5 428 km <sup>2</sup>	13 579 km <sup>2</sup>
Hernád	1 014 km <sup>2</sup>	4 423 km <sup>2</sup>	-	5 437 km <sup>2</sup>
Bódva	851 km <sup>2</sup>	876 km <sup>2</sup>	-	1 727 km <sup>2</sup>
Sajó (separately)	2 339 km <sup>2</sup>	3 206 km <sup>2</sup>	-	5 545 km <sup>2</sup>
All	5 176 km <sup>2</sup>	15 684 km <sup>2</sup>	5 428 km <sup>2</sup>	26 288 km <sup>2</sup>

Figure 1 The watercourses of Borsod-Abaúj-Zemplén county

Made by own editing based on the data of ÉVIZIG



Figure 2 Borsod-Abaúj-Zemplén county water map

Made by: Ministry of the Interior, Directorate-General for Water, Water Management website, Map<sup>12</sup>

#### Industrial threat

- There are 7 high thresholds in Borsod-Abaúj-Zemplén County and 12 low-threshold hazardous industrial plants under the SEVESO Directive.
- The county provides good access to the rail and road main roads, including the M3 and the M30 motorways. The E71 highway connects the country with Slovakia and Poland. On the Borsod-Abaúj-Zemplén county roads and railway lines, chemical plants regularly carry big quantities of dangerous substances. Roads for the transport of dangerous goods by road: M3 and M30 motorways, Nos. 3, 26, 35, 37 and 38. The main routes. Routes for the transport of dangerous goods by rail: Mezőkövesd-Miskolc, Miskolc-Ózd, Miskolc-Tornonyosnémeti, Miskolc-Sátoraljaújhely, Nyékládháza-Tiszaújváros, Mezőzombor-Tokaj railway lines.

#### I.2.2 The Slovakian partner, the Borsod-Abaúj-Zemplén County's vulnerability

The Košice Region covers an area of 6753 km<sup>2</sup>, which represents 13.8% of the territory of the Slovak Republic, making it the 4th largest administrative district in the country. Its population is 766 012, the population density of 113.4 people / km<sup>2</sup>, the second most populous region of the Republic (14.2%).<sup>13</sup>

#### Natural threat

In the Košice region, the eastern Slovak plain is threatened by floods. Despite the precautionary measures, the fragmentation of terrains

<sup>12</sup>[https://www.vizugy.hu/index.php?module=map&pr\\_ogramelemid=107](https://www.vizugy.hu/index.php?module=map&pr_ogramelemid=107)

<sup>13</sup> Based on the data of the Slovak Bureau of Statistics



results in a serious flood risk, which affects thousands of hectares in Uh, Laborc, Latorca, Ondava and Bodrog basins in the case of high intensity and long precipitation.

In mountainous areas, especially in the SpišskáNováVes valley, the rapidly flowing small streams, while in the area of Košice and Michalovce, the Ukrainian Uh River is causing floods.

In the case of water management, potential damage to the surrounding reservoirs (Bukovec, PalcmanskáMaša, Ružín, Starina, ZemplínskaŠirava, Domaša) is a threat to the region and beyond.

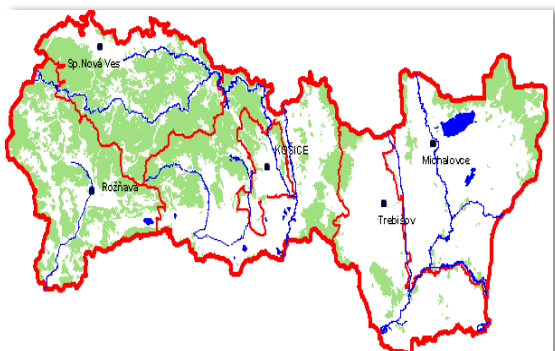


Figure 3. Košice Region water map

Borsod-Abaúj-Zemplén County watercourses:

- HORNÁD – Hernád (Hnilec, Torysa)
- BODROG (Latorica, Laborec, Ondava, Uh)
- TISA - Tisza
- SLANÁ- Sajó
- BODVA – Bódva

In particular, the mountainous region, the western part of the region, Košice and its surroundings, SpišskáNováVes (Igló), Rožňava (Rozsava) are threatened by landslides and avalanches.

Mountains are most affected by the strong winds, but high winds in the Košice Basin and Eastern Slovakia cause serious transport and energy distribution problems

All these dangers pose a threat to rail and road transport as well as the transportation of dangerous goods. These phenomena are typical for the whole region, probably in mountainous regions, in the northern and western regions. In the eastern Slovak plain of Michalovce, Nagyamihály and Tökerebes, the risk of frost and inland water is not common, but its occurrence is a long time and is a serious threat.

The presence of identified and cross-border dominant effects as a result of the analysis made it necessary to deepen communication between the two regions, to create common risk analysis and response responses. The cultural, social, and economic co-operation emerging from Euro regional experiences

has created the legal and structural background that has proved indispensable for vertical and horizontal partnerships in the field of disaster prevention.

The digital databases available at the University of Miskolc Geographical Institute and the Technical University of Košice:

- DTA50: (eg floodplains, mines, buildings, power plants, factories, bridges, marshes, shorelines, charging, electricity, gas pipelines)
- SRTM: ~ 90m spatial resolution digital elevation model
- I, II, III. Military Survey Maps
- Soil data: Agrotopo, e-SOTER digital maps
- CORINE: digital land use data
- Landsat satellite imagery
- Vector Database of Hungary and Slovakia
- 1:10 000 EOTR sections
- 1: 100,000 EOTR sections
- 1:50 000 scale military sections
- The 10m spatial resolution model of the BAZ county
- Geology Map of Hungary 1: 100,000 (FDT100)

### I.3 Dissemination of best practices

Databases combine best practices and help exchange information between stakeholders. In addition, the development of deficiencies and needs generates studies and cooperative projects among other stakeholders.

Based on the experience it can be stated that the approaches applied in each sector can be applied more widely.

It is important that best practice solutions are gaining ground among the cooperating communities and partner regions. It should therefore be explored that there are interactive channels for the transfer of experience that give space to good practice and provide opportunities for self-correction, development, development and broadening the circle of partnerships.

Košice and Miskolc provide a continuous working relationship between civil organizations in the transferring of the experiences of the border agreement. As a priority for civil support for disaster protection, the leadership of the civil organizations of the region in disaster and civil protection work was also given the opportunity to participate in the meetings and to engage in interregional work.

International dissemination was an important area for the international project activities of the two cities, where sharing the results as a mandatory project task enabled the gathering, analysis and sharing of different levels of experience. On the other hand, the European Forum of Voluntary Civil Protection Organizations has provided an international space

where, with the strength of the joint effort, Slovak and Hungarian partners have provided information on several occasions.

Cross-border co-operation has successfully used local and regional press releases of events and outcomes through targeted information delivery, based on pre-elaborated materials, newsletters, or interactive communication provided by press conferences.

### **I.3.1 Establishing interfaces between actors and policies in the field of disaster prevention**

Many local, regional, national policies can be implemented in such a way as to help prevent it. This requires the establishment of a link between the actors involved in the development and implementation of actions that have a significant impact on disaster prevention. It is necessary to look into the professional channels that ensure the emergence of disaster prevention in European development areas.

Occasional floods in the Sajó and Hernád catchment areas connected in time and in space the Miskolc and Košice disaster managements, forcing cooperation.

The area of prevention has been evaluated in the 2000-2005 period with extraordinary damage events as evidenced by the shift in the weight of the Hungarian Disaster Protection Act. Both sides of the border recognized the disaster prevention policy statement that only social responses could be given to incidents that are increasing in number and intensity. By developing strategy-based social resource development and increasing the role of prevention and prevention, this response can be an effective response. The importance of prevention is also strengthened by the experience gained in practice, with the help of this policy to achieve the greatest possible result with the lowest possible cost, which can effectively reduce the number of casualties and damages.

Based on these principles, Košice and Miskolc's local governments and civil protection organizations have continuously provided an opportunity for exchanging views and experiences in the field. Similarly, the similar development of the civil protection procedure, the technical background of the partners, the disaster management strategy, and similar problems and solutions, greatly facilitated the system comparisons and searching for possibilities for connection.

The two cities signed a disaster prevention cooperation agreement in 2008 with the aim of:

- promoting the development of cooperation between partners in the use of joint

intervention procedures for both national and transnational disasters;

- A joint rescue force will be established that spreads and applies civil protection knowledge. This is based on the exchange of good practices, preparation of people, elaboration of joint action plans and development of intervention co-operation guides.
- increase the civil protection preparation and information level in order to provide each individual with a self-defense instrument, in particular with regard to the involvement of youth in order to achieve future ideas.
- Establish a stable relationship between civil protection organizations, in particular between authorities, and scientific communities.

In the field of youth training and civil defense competition, students' preparatory materials were regularly coordinated, both sides presenting and supporting the partner country's events.

In the international network of contacts, Dr. Ronald Barham, a professor at Central Lancashire University, was a prominent partner of the National Disaster Management Directorate, assisted the region and oversaw the development and results of international-Slovak cooperation at international level.

Among the partners of international projects, Europe's leading disaster management organizations and universities have emerged, so Miskolc and Kosice can rely heavily on the network of contacts present at all levels of the profession.

### I.3.2 Use of conclusions from previous experience in disaster prevention

All previous activities need to be evaluated, to recognize and to remove the mistakes, have to learn from the lessons, to built it into the better preparation. In order to define the activity of the disaster management work, it is essential to summarize and continually update the knowledge.

The cycle of crisis management (prevention, defense, restoration) involves a continuous revision of activities since only a realistic error analysis can be used to streamline the procedure, supplement it and make it more effective. The following cross-border threat elements were examined in the development of the prevention methodology among the partners of cross-border cooperation:

- Hydrological hazards of the Sajó-Hernád water system - under the REDCODE project - NEREIDA practice

- Critical Infrastructure Hazards of Košice-Miskolc Road and Rail Network - as part of the DECHATLON project
- Košice-Miskolc Water and Drinking Water Critical Infrastructure Dangers - IMPACT project with special regard to the experiences of water pollution in Miskolc
- Emergencies made by man, cross-border threats to industrial activity - in the framework of the CIVPRO project - analysis of 14 accidental casualty accidents in Iron Foundry of Košice
- Management of the effects of meteorological disasters - Košice: experiences of rescue forces involved in the repair of Tatra's storm corridors; Miskolc: experiences of the Mád and Bogács settlements overcoming floods

#### **I.4. Training and information activities in the field of disaster prevention**

Public awareness can also contribute to the success of disaster prevention, including citizens' awareness of floods, earthquakes or extreme weather conditions. As provided for in the Slovak-Hungarian Convention, the Borsod-Abaúj-Zemplén County and the Košice Region provide mutual assistance for the training and retraining of rescue teams and assistants.<sup>14</sup> On this basis, there was a direct link between the VET and training bodies, facilitating the exchange of trainers, trainers and experts.

The joint training system was established by the RED CODE international project, the most important point of which was the training of the regional development of co-defense at the Slovak Civil Defense Training Center near Ferčkovce. In the framework of the training, the partners jointly assessed the methods of local defense preparation, training procedures and practices. The Slovakian partner introduced the system and methodology of the regional civil defense training schools, and the Hungarian partner built civil defense organizations into the project module and analyzed the further development of the project in the cooperation of the University of Rimini Disaster Department of the University of Bologna and the Department of Built Environment of the Basilicata Technical University.

In this cross-border partnership environment partners have been prepared to implement the PO2005 practice. The Hungarian and Slovak partners participated in the exercises

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<sup>14</sup>212/1997. (XII.1.) On the promulgation of the Convention on cooperation and mutual assistance in the event of disaster in the Government of the Republic of Hungary and the Government of the Slovak Republic Article 4

with a common rescue team and they had the possibility to participate, in the same time, in the Pó river flood protection works. After 2005, the international partnership was boosted.

The relationship established with the educational institutions of the region and the student organizations of the University of Košice and the University of Miskolc, established in the framework of youth competitions organized by MPVSZ, provided the basis for the human resources of the training courses. In the framework of these cooperations, the implementation of exchange visits of the environmental protection engineering students was built, which, besides the introduction of the defense system, was also intended to look at the sources of danger.

#### **I.5 Provide early warning devices**

The ability of the public and policy makers to alleviate the consequences of disasters is largely depends on relying on reliable early warning devices. Both in national prevention and international cooperation, planning of joint actions should take into account regional, European and global forecasting systems. The databases of European Early Warning Systems are available to the partnership. In cooperation with the network of European meteorological services, information about dangerous weather events is available such as heavy rainfall, thunderstorms, stormy winds, forest fires, fog, snow storms, avalanches.<sup>15</sup>

Early warning system operated within the Danube Commission's cooperation<sup>16</sup> will give the information about the current water level data of the border river basins. The European Forest Fire Information System (EFFIS)<sup>17</sup> and the European Flood Alert System (EFAS)<sup>18</sup>, in the EU, the Global Disaster Alert and Coordination System (GDACS)<sup>19</sup> in the world area presents the information about the disasters.

According to Section 15 of the European Floods Directive, in relation to international river basin districts, Member States shall "decide jointly on a risk management measure along watercourses".<sup>20</sup> To this end, several projects were

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<sup>15</sup>[www.meteoalarm.eu](http://www.meteoalarm.eu)

<sup>16</sup> National meteorological and hydro meteorological services of DC members  
[http://www.danubecommission.org/index.php/en\\_US/meteorological](http://www.danubecommission.org/index.php/en_US/meteorological)

<sup>17</sup><http://forest.jrc.ec.europa.eu/effis/>

<sup>18</sup><http://www.efas.eu/>

<sup>19</sup><http://www.gdacs.org/>

<sup>20</sup> Directive 2007/60 / EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risk

implemented in the Slovak-Hungarian cooperation, aiming at the casting models of the river basin of Hernád-Sajó and Bódva. The experiences, and the technical software coming from the international projects led by the University of Miskolc, with regard to Hernád-Sajó - iNTegRisk<sup>21</sup>, to Bódva - FLOODLOG<sup>22</sup> project or the project of KárolyRóbert College of Gyöngyös the "Surveying flood hazards of Sajó valley by remote sensing methods"<sup>23</sup>, gave the relevant monitoring data and the use of state-of-the-art IT tools and databases are an effective part of regional early warning systems. With the flooding model can be predicted the danger in the areas of Hernád, Sajó, Bódva rivers, and on this basis, it is possible to carry out the activities and the more efficient coordination of the necessary prevention and remediation groups.

Based on the infiltration models, an interregional logistic model supporting the carrying out of logistical tasks is a major means of saving and remedying, the main elements of which are:

- the module for organizing the relocation  
The primary task of the module is to make existing procedures, rescue practices more efficient by quickly obtaining the necessary information, and to provide an instant, interactive response to any unexpected situations. The content of the module is the designation of the meeting and collection points of bodies and resources involved in the protection work, the designation of shelters for accommodating refugees and the organization of logistics between the two above endpoints.
- module for accessing objects  
To create directions for approaching objects or objects (such as trafo-stations, etc.) needed for damage elimination. In doing so, the operator selects the starting point and the objects in the databases that one needs to access. The module prepares the route to be used in the approach taking into account flooded areas.
- A module for assigning the tools needed to task

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assessments (15) EURLEX Official Journal of the European Union L 288/27, 06.11.2007

<sup>21</sup> 2008.12.01-2013.05.31 Early recognition, monitoring and integrated management of emerging, new technology related risks <http://integrisk.eu-vri.eu/>

<sup>22</sup> 2012.04.01 - 31.03.2014 Project Partner: Košice University of Technology, Košice Civil Protection University, B-A-Z County Disaster Management Directorate, Dr. Cholnoky Environmental Management Nonprofit Nonprofit Ltd., Zoltán Bay Applied Research Nonprofit Ltd. (subcontractor)

<sup>23</sup> HUSK 1001/2.1.2/0026, partner: Slovenský vodohospodársky podnik, štátny podnik, Odštepny závod Banská Bystrica

In order to provide the tools needed to manage the situation, the module selects warehouses (eg. warehouses, garages, etc.) and mobile capacity according to the location of the deployment, the application of which is logistically recommendable.

### **I.6 The financial environment of preventive activity**

It is important to look at the disaster as a preventative investment, as the costs of preventive measures are in most cases lower than the cost of the compensation. It is necessary to examine the financial instruments that support the work of the workshop, the research background, the training and information system.

The sources of funding for cross-border disaster prevention are provided by the civil protection budget of local governments and on the national or international project funds.

The international sources of the Interregional Cooperation Program supported the prevention of the two cities' disasters.

- INTERREG IIIB (2002-2006) supported the creation of so-called transnational co-operations across countries to promote territorial integration of the European area. The main areas of intervention are: the development of transnational development strategies, the development of an efficient and sustainable transport network, the promotion of the linkage with the information society, environmental cooperation, protection of cultural and natural values, etc. Within this program, the REDCODE - Regional Disaster Common Defense project, with a total budget of 1,310,000 Euros, was designed to simulate the theoretical and practical aspects of flood and inland water protection.
- The aim of the INTERREG IVC (2007-2013) program was to increase the effectiveness of regional development policies and to contribute to the economic modernization and increasing competitiveness of Europe through innovation, knowledge-based economy, environmental protection and risk prevention. Priority 2 of the program is the environment and risk prevention area, the most important sub-themes of which include natural and technological risks, water management, waste management, biodiversity and conservation of natural resources, energy and sustainable public transport, cultural heritage and landscape. Within this framework, the CivPro - Regional Strategies for Disaster Prevention project, with a total budget of € 1.892.220, was devoted to the exchange and transfer of know-how related to the development of regional policies.



The path to the further development of the Disaster Prevention Volunteer Network can be defined on two levels. Increasing the scope of its operation, the Interregional level may form an expert forum in support of the policies of the participating municipalities and regions in the structural framework of the Carpathian Euro region. Expanding on a volunteer expert level at European level, the European Voluntary Civil Protection Forum can act as an expert group of member organizations and make recommendations to the European Disaster Management Mechanism.

## **II. PROPOSAL FOR THE SUSTAINABILITY OF THE PREVENTION NETWORK**

### **II.1 Involvement of communities in the work of the prevention network**

It is important to understand the local context of vulnerability because it has basic capacity to prevent disasters and reduce their impact. This often requires not only professional knowledge, but also the creation of political, social and economic conditions. Communities, people are able to handle hazards, be it natural (flood, landslide, earthquake) or industrial, social (conflict, environmental or business accident) catastrophe. The experience that local communities' efforts to reduce the impact of prevention and disaster, despite the low central support, can be effective. These recognitions are the most appropriate approaches to the self-sufficient citizen's ideal. The communities become to be flexible to overcome the effects of natural, technological and environmental hazards while reducing the likelihood of their occurrence, thereby addressing the social and economic vulnerability of modern societies. The Disaster Prevention Volunteer Network must show participation and involvement that will provide a disaster-resistant community through partnership. Widespread dissemination of common practices and studies strengthens community participation and ensures the most cost-effective use of disaster relief.

In the future, broad social support can be the use of the compulsory community service of high school services within the network, with which we can achieve a dual goal. On the one hand, we can increase the volunteer work intensity of organizations in the disaster prevention network, provide more information to the population, and young people who are familiar with the goals of the network can increase the human resources of the member organizations and the effectiveness of social assistance.

### **II.2 International cooperation, exchange of experience**

The Network's multidisciplinary partnership needs to be enhanced, promoting and encouraging partnership, know-how and experience transfers to

organizations who are outside of the network. In international partnerships, professional development can be interpreted both individually and at Community level, enhancing the significance of the policy of the disaster prevention network and promoting the sustainability of voluntary human resources.

### **II.3 Collect and manage data**

With the help of collaborative research universities, efforts need to be made to build comprehensive, complex databases that allows data comparability and defining missing information and can be evaluated on the basis of the database, how to make more effective the sharing of information between the actors of society and the partner regions.

### **II.4 Encourage education and knowledge applications**

Education, training, awareness-raising, information, practices and all activities aimed at educating the population and, above all, young people's students through their knowledge, attitudes and behavior, should be given as a priority, to actively participate in democratic life in order to protect their built and natural environmental values. The Disaster Relief Volunteer Network should have the responsibility of educating those affected by the disaster to transfer the knowledge, skills and skills needed

### **II.5 Information**

Sustainable programs need to be created for all ages. and the formal education process should include information on hazards and impacts, risk management practices and disaster prevention activities. The members of the network will assist in implementing the passive information obligation of local governments. It is also necessary to examine the construction of a real-time IT system at the municipal level on the electronic media, which can assume responsibility for the professional maintenance of the system by continuously transmitting the information provided by members of the network.

### **II.6 Ensuring human resources, sustainability of volunteering motivation**

In keeping with the principle of volunteering, the Network should be an open group where constant invitations are continually expanded and invitations to participate in a workshop are only an option and not an obligation. The Network consists mainly of organizations, but organizations are also made up of people, so their individual motivation determines the degree and duration of their involvement. In order to maintain the viability of the Network, account must be taken of the social-community (primarily community-building role) of the people involved, the economic, (material, mental and psychic value creation), political (participation in social organizations), social psychology (subjective

meaning of volunteering, identity) dimensions. It is important to increase the identity of volunteers, including experts in the Network Workshop, and operational workers in social campaigns, which can be different ways:

- Social recognition: exemption from local taxes,
- Visible identity: External attribution of network attribution,
- In the case of absenteeism, the employer's guarantee to keep the job,
- Regular exchange of experience, maintenance of motivation,
- Conferences, organization of international presentations,
- Creating publicity, creating media use and creating positive media content,
- Support for member organizations (operation, training, equipment).

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