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WATERSHED ANALYTICAL STUDY



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WATERSHED ANALYTICAL STUDY

- ASSESSMENT OF CAPACITIES OF TOWNS AND MUNICIPALITIES IN THE WATERSHED OF ZAPADNA MORAVA RIVER FOR THE PURPOSES OF JOINT NATURAL DISASTERS AND OTHER ACCIDENTS RISK REDUCTION ACTIVITIES -



Watershed Analytical Study – Assessment of capacities of towns and municipalities in the watershed of Zapadna Morava river for the purposes of joint natural disasters and other risk reduction activities

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1. INTRODUCTION

1.1 ABBREVIATIONS

EMH	Emergency situations
PE	Public enterprise
PIMO	Public Investment Management Office of the Government of the Republic of Serbia
MPALG	Ministry of Public Administration and Local Self-Government
MEP	Ministry of Environmental Protection
MAFWM	Ministry of Agriculture, Forestry, and Water Management
OP	Operational plan
QLP	Qualified legal persons
CPOF	Organisation and functioning of civil protection
PDNA	International post-disaster needs assessment methodology, developed by the UNDP, the World Bank, and the European Commission
REC	Regional Environmental Centre of Serbia
NSO	National Statistical Office
NSI	National Seismologic Institute
NHMS	National Hydro-Meteorological Service
DE	Department for Emergencies of the Ministry of Interior of the Government of RS
PRS	Protection and rescue system
SCTM	Standing Conference of Towns and Municipalities
UNDP	United Nations Development Programme
FAO	UN Food and Agriculture Organisation
CP	Civil protection

1.2 OVERVIEW OF THE NATIONAL LEGISLATIVE FRAMEWORK

- The Law on Local Self-Government (“Official Gazette RS” No. 129/07 and 83/14 – other rules)
- The Law on Utility Services (“Official Gazette RS” No. 88/11 and 104/16)
- The Law on Waters (“Official Gazette RS” No. 30/10, 93/12, and 101/16)
- The Law on Emergencies (“Official Gazette RS” No. 111/09, 92/11, and 93/12)
- The Law on Natural and Other Post-Disaster Recovery (“Official Gazette RS” No. 112/15)
- National Programme for Management of Natural Disaster Risks (Conclusion of the Government of RS No. 05 - 217-16233/2014-1 of 19 December 2014)
- AP for Implementation of the National Programme for Management of Natural Disaster Risks



1.3 THE ZAPADNA MORAVA WATERSHED¹

Characteristics of the Zapadna Morva Watershed

Geomorphological conditions in the watershed

The Zapadna Morava Watershed covers a significant part of the western and south-western Serbia and covers 15,805 km². The watershed morphologically includes mountains, plateaus, and depressions. The highest point of the watershed is that of the mountain Hajle of 2,400 meters above sea level, while the lowest point is at the confluence of the Zapadna into Južna Morava at 127 meters sea level, meaning that the difference of elevation is about 1,800 meters.

Mountains and plateaus

Major mountains within the watershed are Kopaonik (2,017 meters asl) and Mokra Gora (2,155 meters asl). Along the left part of the Zapadna Morava river course the major mountains are (starting from the river spring): Povlen (1,346 meters asl), Maljen (1,103 meters asl), Rudnik (1,132 meters asl), Gledičke Mountains (922 meters asl). Along the right side of the river course there are Veliki Jastrebac (1,492 meters asl), Koznica (1,210 meters asl), Nerodimka (1,721 meters asl), Žljeb (2,382 meters asl), Hajla (2,400 meters asl), and Golija (1,833 meters asl). In the central part of the watershed there are: Željina (1,785 meters asl), Radočelo (1,643 meters asl), Stolovi (1,375 meters asl), Jelica (819 meters asl) and Kotlenik (748 meters asl).

The high mountain formations occupy the western, northern, and central parts of the watershed, while lower formations are located in the south. Mountain slopes are not steep towards the river network. The exception are the areas around the river springs or sections where they cut into solid rock – limestone and magmatites.

Depressions and valleys

The depressions are great morphological units. The biggest is the Kosovo Polje, a tectonic depression bordered by faults, and also Malo Kosovo, Dragačevo, Rasina, Gruža, and Župa.

The Zapadna Morava River runs through a composite valley consisting of four valleys: Požeška, Čačanska, Vranjačka, and Kruševačka, one major gorge, Ovčarsko-Kablarska and two other minor gorges, Trestenik gorge between the Kraljevačka and Kruševačka valley, and the Mreznička gorge directly before the confluence of Zapadna Morava into Južna Morava.

The watershed also includes the Ibarska gorge and Ćetinje gorge from the river spring to Užice.

The part of the watershed around the lower river courses of Zapadna Morava, Gruža, and Rasina has characteristics of flatland-hilly terrain.

¹ Data taken from the General Design of Arrangement of the Zapadna Morava, Institut za vodoprivredu „Jaroslav Černi“ A.D. Beograd, Department for arrangement of river courses – Belgrade, October 2008.



1. INTRODUCTION

Geological characteristics of the watershed

With respect to lithological composition and genetically, the area of the Zapadna Morava watershed is very diverse, including metamorphic, magmatic, and sedimentary rocks. Regional distribution of certain rock types is very uneven. Crystal shales of higher level of crystallinity (predominantly gneiss), present in the river course of Lab, Rasina, and along the right river bank of Zapadna Morava, downstream to the confluence of the Ibar River. In contrast to that, a broad zone of crystallised shale of lower level of crystallisation stretches along the whole western side of the Zapadna Morava watershed.

It is intersected by the river basins of Moravica, Četinja, Skrapež, Ibar and their tributaries. This zone stretches approximately along the north-south direction. Intermittently, as in the case of Četinja and Moravica, in this zone there are intermittent limestone-dolomite masses, or conglomerates with sandstones and claystones.

In terms of metamorphic rocks, occupying a considerable part of the basin, there are mostly crystalline shales, with magmatic rocks and tuffs intermittently. The major and most widespread metamorphic rocks are crystalline shales of higher and lower level of crystallisation. The first group of shales include gneiss, micaschists, amphibolies, and amphibolitic shales, while the other group includes phyllites, slates, sercites, and chlorite shales.

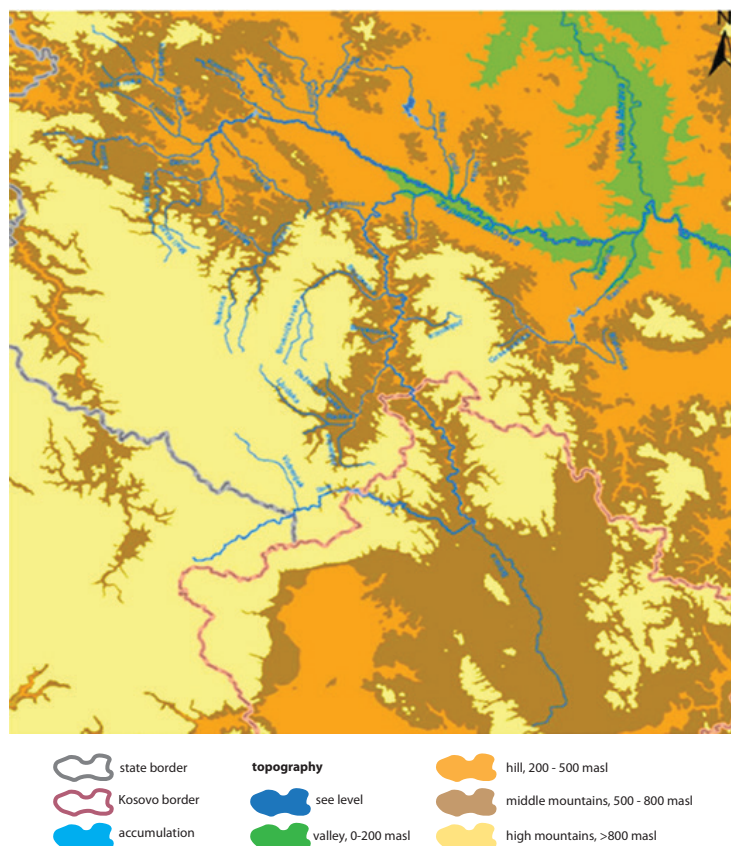


Figure 1. Topography of the Zapadna Morava Watershed



In terms of mineral composition gneiss is similar to granite and has high values of toughness and resistance to destructive effects of water. They make up the terrain at the confluence of the Zapadna Morava and Južna Morava, near Stalać.

Micaschistes are less resistive than gneiss. They are present in the eastern part of the watershed (northern and north-western slopes of Veliki Jastrebac, southern slopes of Kopaonik, and the territory of Malo Kosovo, all the way to Priština), and to a somewhat lesser degree in the central part (Goč), as well as the northern slopes of Kopaonik.

Crystalline shales of lower level of crystallisation (phyllites, slate, chlorite and sercite shales) have varying and uneven physical-mechanical properties and lower resistance to external factors. In the Zapadna Morava watershed and mostly in the area of spring of the Ibar river, they are mostly widespread on the left and right side of the river Sitnica, in the watershed of Moravica and Skrapeža.

In terms of magmatic rock, the watershed includes deep rocks (granites, granodiorites, diorites, serpentine periodictes and serpentinites) and surface rocks (andesites and dacites) and their tuffs.

Granites, granodiorites, and diorites are the strongest rocks in the watershed. They are present in the northern slopes of Kopaonik, in the area between the tributaries of Ibar, Studenica, and Lopatnica (Čemerno) and in the Jankova gorge, in the south-eastern part of the Zapadna Morava watershed. Andesites and dacites are hard rocks, permanent and stable, spreading along a number of isolated directions in the watershed of the Ibar river and its tributaries, and in the watersheds of Čemernica and Gruža.

Ultrabasic magmatic rocks – mostly dunites and periodites, are to a great degree of serpentine type and make up a great part of the Zapadna Morava watershed. They come in the form of big, independent, and geologically older masses: Zlatibor, Maljen, Ibarski Massive (Stolovi, Željini), eastern slopes of Kopaonik and Rogozno.

Sedimentary rocks occupy a considerable part of the Zapadna Morava watershed. Intensive tectonic processes resulted in raising the level of the bottoms of what used to be lakes (Kosovo lake, the borders of the Pannonian Valley), in which the massive of Kopaonik raises up as an island made up of magmatic and metamorphic rocks. Waters of these lakes and seas, after the raising of the terrain ran off through the river valleys of Ibar, Velika Morava, and the Danube. Lake bottoms became plateaus and mountains, and subsequently this process was supplemented by metamorphosis of rock masses and subsequent erosion processes.

Presence of limestone and dolomites is observed at the confluence of Moravica into Ćetinja, and in the gorge of Zapadna Morava between the mountains Ovčar and Kablar. Other sedimentary rocks, made up of conglomerates, sandstone, marl, claystones make up the Kosovski, Čačanski and Kruševački basin and due to their unstable composition are the main source of suspended matter sediments.



1. INTRODUCTION

Fesh and diabase – cherts - are manifested in form of bigger, isolated zones across the whole Zapadna Morava watershed, present in the watersheds of the rivers Ibar, Moravica, Bjelica, Rasina, and Gruža. Their presence in these watersheds results in great quantities of suspended and small-particles sediments.

Lake Neogenes and fluvial Pleistocene – Holocene sediments are mostly lake and fluvial sediments made up of sand, gravel and their alluvial and lake complexes. The complex of alluvial sediments makes up the flatland parts of terrain along river valleys of the Zapadna Morava and Ibar with predominant differently arranged and unevenly granulated gravelly-sand sediments.

Intermittently they include layering of clay materials, less frequently sludges. In deeper parts there are usually dominant gravels and gravelly sands, of bigger granulation to powdery sands on top. The alluvial gravelly – sandy sediments are characterised by fully loose sands and gravels and great variations in physical properties depending on granulometric composition, form, size and complexity of grain.

Younger neogenic sediments are sand-gravel sediments, making up big parts of terrain in lake basins around Kraljevo, Čačak, and Kruševac. These are sands and gravel with lower share of sandy clay, well arranged and granulated rocks and rock complexes of medium and big granulation sands and gravels. They are characterised by frequent dissipation, and where the complex includes thinner foldings there are land-slides observed.

Quarternial complexes of sands, clays and gravel make up much of the surface terrain along the Zapadna Morava. Clay, sand, and gravel are intermittent and irregular. Physical-mechanical properties vary depending on individual locations. Complexes are mostly made up of unconnected and semi-connected sediments, less frequently of poorly connected sandstone and conglomerates. Terrains of this kind typically demonstrate higher erosion, frequent land-slides, and abrasion.



The hydrographic network of the Zapadna Morava watershed

The hydrographic network of the Zapadna Morava watershed is very developed and includes several hundred of water courses of different size.

The Zapadna Morava River is created by the merging of Moravica and Četinja in Pošeška valley, near the village Leposavić, at 298 meters asl. There are more than one hundred direct tributaries to the Zapadna Morava. A schematic illustration of major direct tributaries is presented in Figure 2.

There are a number of tributaries of Zapadna Morava with watershed area $A_{ws} > 500 \text{ km}^2$. These are: Ibar (7,925 km^2), Moravica (1,513 km^2), Četinja (1,210 km^2), Rasina (990 km^2), Čemernica (629 km^2), and Gruža (617 km^2).

The Ibar River watershed is a separate hydrographic and geomorphological whole within the Zapadna Morava watershed, making up 54% of its territory. The Ibar River has a number of major direct tributaries, the biggest being Sitnica (2,590 km^2), Raška (1,036 km^2) and Studenica (541 km^2).

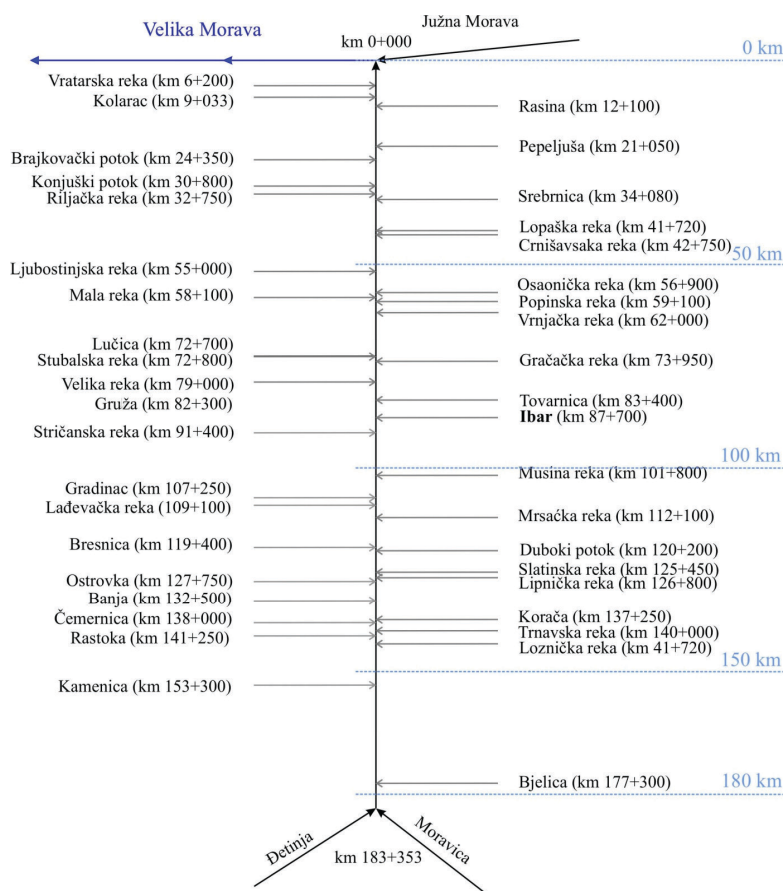


Figure 2. Schematic diagram of the Zapadna Morava watershed

1. INTRODUCTION

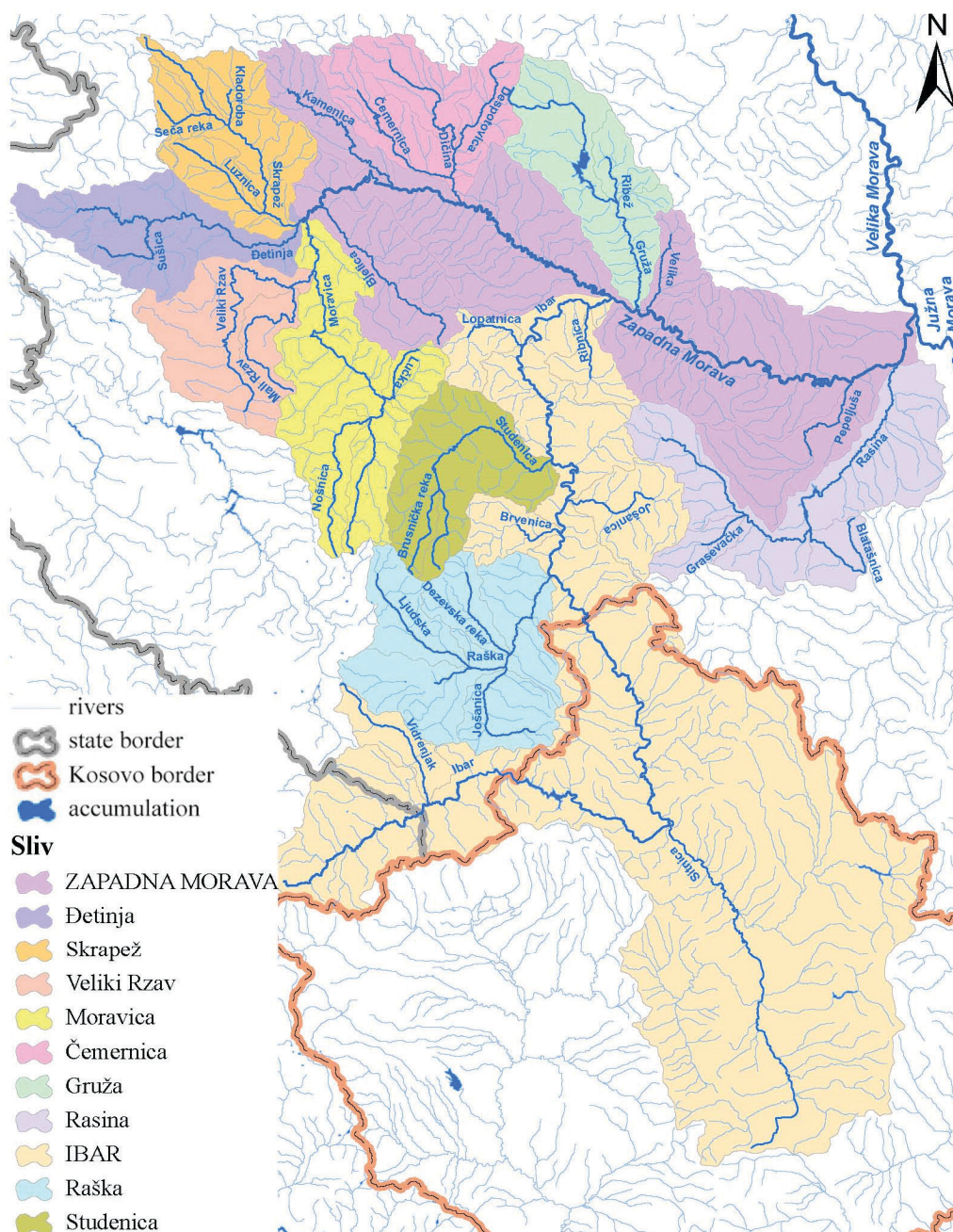


Figure 3. Hydrographic network of Zapadna Morava

1. INTRODUCTION



Serial number	Towns and municipalities in the Zapadna Morava watershed	Area (km ²)	Population	Male
				Female
1	Town Kraljevo	1.530	122.782	60.249
				62.533
2	Town Čačak	636	113.383	55.082
				58.301
3	Town Novi Pazar	742	103.087	51.233
				51.854
4	Town Kruševac	854	125.853	61.472
				64.381
5	Municipality Trstenik	448	41.381	20.269
				21.112
6	Municipality Tutin	742	31.282	16.178
				15.104
7	Municipality Vrnjačka Banja	239	26.948	12.967
				13.981
8	Municipality Knić	413	13.675	6.918
				6.757
9	Municipality Požega	426	28.757	14.112
				14.645
10	Municipality Raška	670	23.904	11.983
				11.921
11	Municipality Gornji Milanovac	836	43.140	21.197
				21.943
12	Town Užice	667	75.805	36.773
				39.032
13	Municipality Kosjerić	358	11.542	5.736
				5.806
14	Municipality Ivanjica	1.090	31.033	15.674
				15.359
15	Municipality Čajetina	647	14.413	7.158
				7.255
16	Municipality Arilje	349	18.495	9.198
				9.297
17	Municipality Lučani	454	20.012	10.026
TOTAL:		11.101	845.492	416.225
				429.267

Table 1. Towns and municipalities in the Zapadna Morava watershed



1. INTRODUCTION

1.4 THE PURPOSE OF THE ANALYSIS

The need for the study resulted from the need of the towns and municipalities within the Zapadna Morava watershed to define specific activities in their joint efforts to reduce risks of natural disasters (Chapter 4). Additionally, it is necessary to consider in a qualitative way the capacities of towns and municipalities and, based on these parameters, present models and recommendations for future cooperation.

In order to respond adequately to risks of natural disasters it is of special importance to include in the future risk assessment and management measures and activities a good understanding of climate change issues.

Recommendations resulting from this study shall serve as the basis for identifying inter-municipal cooperation in the watersheds of major rivers (Chapter 5). The study shall also serve the towns and municipalities of the Zapadna Morava watershed to elaborate activities aimed at disaster risk reduction in view of natural and other disasters.

In order to respond adequately to natural disasters the study intends to integrate an understanding of and measures against climate change. These two issues are closely linked in cause-effect manner, and it is therefore very relevant not to separate them, but rather understand the causes and origins of events in order to better understand possible events in the future.

Methodology

For the purposes of this study, a special Questionnaire was developed (Appendix 1). The questionnaire was filled by coordinators appointed by towns and municipalities and by persons from units of local self-government in charge of risk reduction and management and recovery after natural disasters.

A number of towns and municipalities (8 in total) filled in the questionnaires and submitted them in electronic form, while other towns and municipalities (9 in total) filled in the questionnaires directly through interviews which were conducted.

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED



2.1 NORMATIVE FRAMEWORK

The overview of the legislative framework for the development and contents of normative acts is presented in Chapter 1.2.

On the basis of **Article 15 of the Law on Emergencies**, in exercising their rights and obligations related to protection and rescue, units of local self-government through their relevant authorities perform the following tasks:

1. Pass a decision on organizing and functioning of civil protection in the territory of the local government unit and ensure implementation thereof in accordance with the integrated protection and rescue system of the Republic of Serbia;
2. Adopt a plan and programme of development of the system of protection on the territory of the local government unit in accordance with the Long Term Plan of development of the protection and rescue system of the Republic of Serbia;
3. Plan and identify sources of funding for development, setting up and execution of tasks related to protection and rescue and development of civil protection and implementation of measures and tasks of civil protection on the local government unit;
4. Set up an emergency management headquarters;
5. Cooperate directly with the competent body, other state agencies, companies and other legal persons;
6. Cooperate with regions and municipalities of neighbouring countries, in accordance with this Law and other laws;
7. Align its own plans of protection and rescue with the Plan of Protection and Rescue in Emergency Situations of the Republic of Serbia;
8. Identify trained legal persons of special interest for protection and rescue;
9. Ensure telecommunication and information support for protection and rescue and ensure inclusion into the telecommunication and information system of the Department for Observation, Information and Alert and liaise with it;
10. Develop and adopt the Vulnerability Assessment and the Plan of Protection and Rescue in Emergency Situations;
11. Monitor for threats, informing and early warning the population;
12. Procure and maintain alarm instruments within an integrated system of public alert in the Republic of Serbia and participate in the development of the study of coverage by the public alert system for the territory of the local government unit;
13. Organize, develop and implement personal and mutual protection;
14. Set up, organize and equip general purpose civil protection units;
15. Adjust plans of protection and rescue in emergency situations with neighbouring local governments.

The competent body of the local government unit, in cooperation with the competent authorities, competent bodies of the autonomous province, municipal and metropolitan emergency management headquarters and other professional bodies of the local government unit, shall develop the risk assessment of the unit of local government and propose the plan to the competent body of the local government for adoption.

On the basis of the **Law on Waters, Article 55**, it is prescribed that units of local self-government through their competent authorities, adopt Operational Plans for Flood Defence for water courses of category II.



2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

On the basis of the **Law on Local Self-Government, Article 20, para 1, item 19**, it is prescribed that units of local self-government through their authorities organize protection against natural disasters and fire protection and ensure conditions for their removal and mitigation of their consequences.

After natural disasters, in order to achieve reconstruction and quick recovery, and on the basis of **Article 16 of the Law on reconstruction after Natural Disasters and Other Accidents**, unit of local self-government, without delay, appoint the necessary number of damage assessment commissions as result of natural or other disasters affecting citizens' assets, according to acts regulating uniform methodology for risk assessment in case of natural disasters and other accidents, adopted by the Government. Units of local self-government take care of uniform and harmonized application of the act on uniform methodology for risk assessment in case of natural disasters and other accidents.

Natural disasters risk reduction plans are an overview of measures and activities in order to reduce risks of natural disasters. A number of laws (Law on Waters, Law on EMH, Law on Local Self-Government, etc.) state that units of local self-government are obliged to plan measures in order to reduce risks of natural disasters. There is no prescribed methodology for these plans, but the draft Law on Natural Disaster Risk Reduction and Management will make this plan mandatory.

Units of local self-government are obliged to prepare and adopt the following acts:

- Natural disasters and other accidents vulnerability assessment
- Plan of protection and rescue (PPR)
- Decision on organisation and functioning of civil protection (FCP)
- Long-term, mid-term and short-term Plans for development of protection and rescue system (PRS)
- Natural disaster (ND) and other accidents risk reduction plans
- Decisions appointing qualified legal persons (QLP)
- Operational plans (OP) for flood protection for water courses of category II
- Decisions establishing the commission for damage and needs assessment
- Decision establishing emergency management headquarters (EMH) at local level

With respect to the above obligations, a survey has been conducted among towns and municipalities in the Zapadna Morava watershed and the following table presents an overview of adopted normative acts:

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED



Town/municipality	Vulnerability assessment	PPR plans	Decision on FCP	Decision appointing QLP	OP of flood defence	Plan of development of RS	Natural disaster risk reduction plan	Decision appointing damage assessment commission
Tutin	-	-	+	+	+	-	-	+
Novi Pazar	-	-	+	+	+	-	-	+
Raška	-	-	+	+	-	-	-	+
Kraljevo	-	-	+	+	+	-	-	+
Vrnjačka Banja	-	-	+	+	+	-	-	+
Trstenik	-	-	+	+	+	-	-	+
Kruševac	-	-	+	+	+	-	-	+
Knić	-	-	+	+	+	-	-	+
Čačak	-	-	+	+	+	-	-	+
Lučani	-	-	+	+	+	-	-	+
Arilje	-	-	+	+	+	-	-	+
Kosjerić	-	-	+	+	+	-	-	+
Užice	-	-	+	+	+	-	-	+
Požega	-	-	+	+	+	-	-	+
Gornji Milanovac	-	-	+	+	+	-	-	+
Ivanjica	-	-	+	+	+	-	-	+
Čajetina	-	-	+	+	+	-	-	+

Table 2. Overview of adopted normative acts



2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

As the above table demonstrates, the level to which the said normative acts have been adopted by towns and municipalities in the Zapadna Morava watershed is quite even, practically identical, while the acts themselves are of uneven in terms of levels of adoption. Different towns and municipalities adopt the same acts by the Council while other by the Assembly. Also, methodology of developing these acts vary from each other.

Some local governments have developed their natural disasters and other accidents vulnerability assessments and protection and rescue plans, but have not formally adopted them, meaning they were not approved by the DE MUP (legal obligation from Article 15 of the Law on EM).

It should be noted that in March 2017 the Ministry of Interior adopted new Instructions on methodology for natural disasters and other accidents vulnerability assessment and protection and rescue plans in emergencies („Official Gazette RS”, No. 18/17), according to which all actors who had adopted and received approval of the Mol for their vulnerability assessments and protection and rescue plans according to regulations existing at that time were again obliged to harmonise these acts with the provisions of the new instructions within six months of their coming into effect.

Based on the above, it can nevertheless be concluded that bigger municipalities and towns do have to some degree somewhat greater capacities for development and adoption of normative acts relevant to natural disaster risk reduction (discussed in more detail in section 2.3 – functional framework).

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED



2.2 INSTITUTIONAL FRAMEWORK

With respect to internal organisation of town and municipality administrations, there are no separate established services or departments in charge of risk reduction tasks, but these competences according to the prevailing regulations are „assigned“ to public servants within the existing staffing plans or by decisions of heads of municipal administrations.

On top of the fact that most local governments do not have separate services for this purpose, there is a prohibition of new employment in local governments based on the Decree of the Government of the Republic of Serbia, and the intended right-sizing of local administration. It is also important to note that specific areas of disaster risk reduction, such as climate change, require special technical qualifications for such tasks. The process of conducting the vulnerability assessment and the development of protection and rescue plans require licenses which are issued by the Department for Emergency Management of the Ministry of Interior (at least one member must have the relevant license).

Processes related to post disaster recovery are somewhat better regulated since the adoption of the Law on Post Disaster Recovery but the existing methodology for damage assessment dates back to 1987 and does not sufficiently regulate the procedures for damage assessment. Namely, a big part is mission which is related to post disaster needs assessment, and the methodology is also outdated with respect to entities in charge of the assessment, property issues, the state system, etc. (Instructions on uniform methodology for disaster damage assessment - „Official Gazette SFRY“, No. 27/87). Tasks related to the development of this methodology are within the competences of the NSO.

With the adoption of the National Disaster Risks Management Strategy and the Action Plan for the implementation of the Strategy, the Republic of Serbia has to a great extent defined the future activities, and entities in charge and partners involved, as well as sources of financing terms of institutional capacities for disaster risks management.

Additionally, in cooperation with the UNDP, the World Bank, and the FAO, during 2017 first presentations, workshops and training courses have been organized for participants from national and local level on the topic of PDNA. A whole series of training activities is planned including training of trainers and training of staff from town and municipal administrations who are members of damage assessment commissions (more details on section 4.3 of this study).

All towns and municipalities have established their emergency management headquarters with a certain number of technical-operational teams.



2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

Town/municipality	Service/department in charge	
Tutin	One public servant	!
Novi Pazar	Department within town administration (8 systematised posts)	✓
Raška	One public servant	!
Kraljevo	Department within town administration (8 systematised posts)	✓
Vrnjačka Banja	Division within relevant department (5 systematised posts)	✓
Trstenik	One public servant	!
Kruševac	Department within town administration (12 systematised posts)	✓
Knić	One public servant	!
Čačak	Two public servants	!
Lučani	One public servant	!
Arilje	One public servant	!
Kosjerić	One public servant	!
Užice	One public servant	!
Požega	One public servant	!
Gornji Milanovac	One public servant	!
Ivanjica	One public servant	!
Čajetina	One public servant	!

Table 3. Service/department in charge

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED



2.3 FUNCTIONAL FRAMEWORK

There are three key factors which are assessed in disaster risk management processes by towns and municipalities:

1. the normative framework;
2. human resources; and
3. material resources.

In terms of speed and efficiency of post disaster recovery it is possible to assess the functionality of the system and institutions and the relevant services and organisations.

With respect to the above, and based on conducted surveys and the study in towns and municipalities of the Zapadna Morava watershed, the following tables present the functionality of towns and municipalities of the Zapadna Morava watershed in natural and other disasters risk management.

Functionality/ resources		Normative	Human resources	Material resources	Recovery
Moderate	!	Absence of normative acts in the field of natural and other disasters risk reduction and risk management	Absence of services/ departments or persons in charge of natural and other disasters risk reduction and risk management, as well as CP	No appropriations from the budget of units of LSG for natural and other disasters risk reduction and risk management, as well as for CP	Slow and long-lasting recovery; Increased rates of poverty
Medium	!	Some normative acts are developed (less than 50% of those prescribed by the law)	There are persons who are, along with other tasks, in charge of disaster risk reduction; CP commissioners and their deputies are appointed, but there has been no training and examinations and no established unit of CP for general purposes	There are some appropriations (less than 1%) from the local budgets of units of LSG for natural and other disaster risks management	Slow recovery, not accompanied by strengthening of units of LSG with respect to future disasters



2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

Functionality/ resources		Normative	Human resources	Material resources	Recovery
Medium	✓	Normative acts are developed (predominantly) and they define vulnerability to natural and other disasters, PRS, PPR plans, CP in the territory of units of LSG and entities and persons in charge of future development; These acts are updated at certain intervals.	There are in place services / departments in charge of natural disasters risk reduction and risk management; Commissioners and deputy commissioners for CP are appointed, trained, and passed the relevant examinations; A number of CP units of general purpose are established.	Appropriations from local budgets of units of LSG exceed 1% and are directed to natural disasters risk reduction and procurements for the needs of the CP.	Recovery is fast, but there still remains threat of the same risks since the underlying causes (social, infrastructural) have not been addressed.
High	✓	Normative acts are developed and harmonized with other acts relevant to social and economic development of units of LSG; Acts relevant to natural and other disasters risk reduction and risk management are regularly updated; normative acts of units of LSG at the watershed level are updated relative to common risks, plans and activities; Normative acts are developed in all institutions relevant to the PRS; Normative acts include anti-climate change actions and building of resilient local communities.	Services / departments in charge fully comply with requirements in the field of natural disasters risk reduction and risk management, especially in terms of climate change and fight against climate change; Commissioners and deputy commissioners for CP are adequately qualified to respond to needs; CP units of general purpose are established; PE and institutions relevant to PRS are in place, and official persons, commissioners, and deputy commissioners for CP, as well as general purpose CP units; PRS is uniform both for the territory of the units of LSG and for the territory of the watershed.	Appropriations from local budgets of units of LSG exceed 1% and are directed to natural disasters risk reduction and procurements for the needs of the CP; PE and institutions relevant to PRS perform continued investments for reduction and management of natural disaster risks and for development of CP; Appropriations for social and economic development include strengthening of unit JLS in the area of natural disaster risk reduction.	Recovery is fast and efficient, and risks of future disasters are acceptable; Build back better principles applied to reconstruction, and social causes have been addressed; In the post disaster period there is no increase in poverty; Many persons are insured against disaster risks.

Table 4. Functionality of towns and municipalities of the Zapadna Morava watershed in natural and other disasters risk management

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

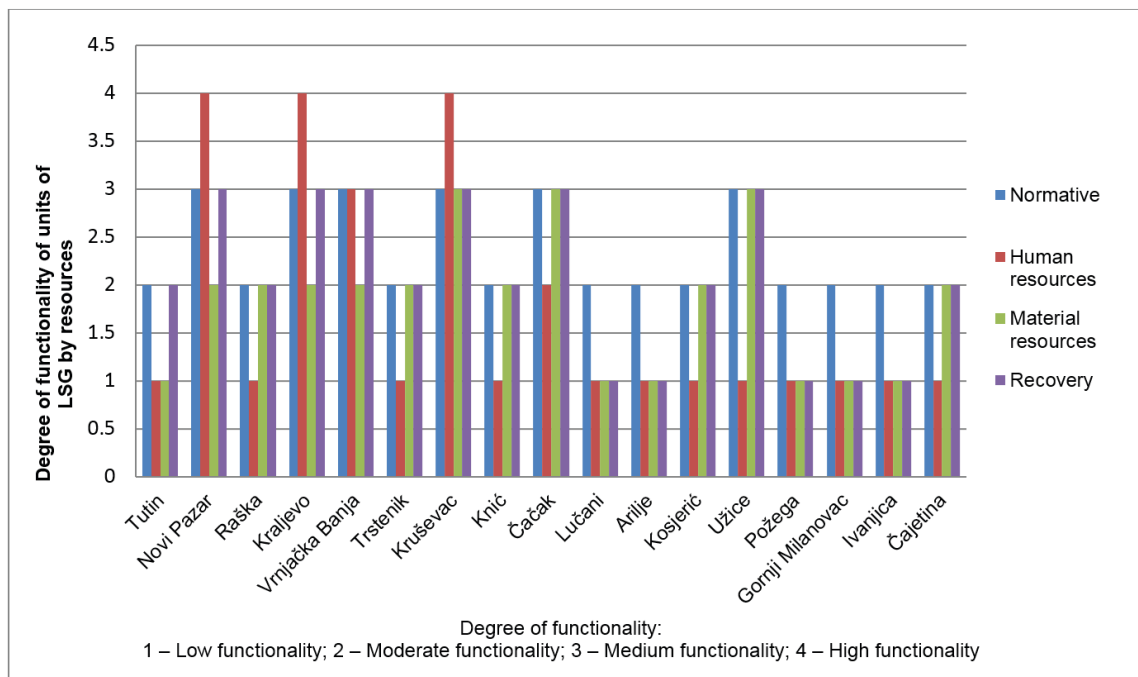


Chart 1. Degree of functionality of units of LSG by resources

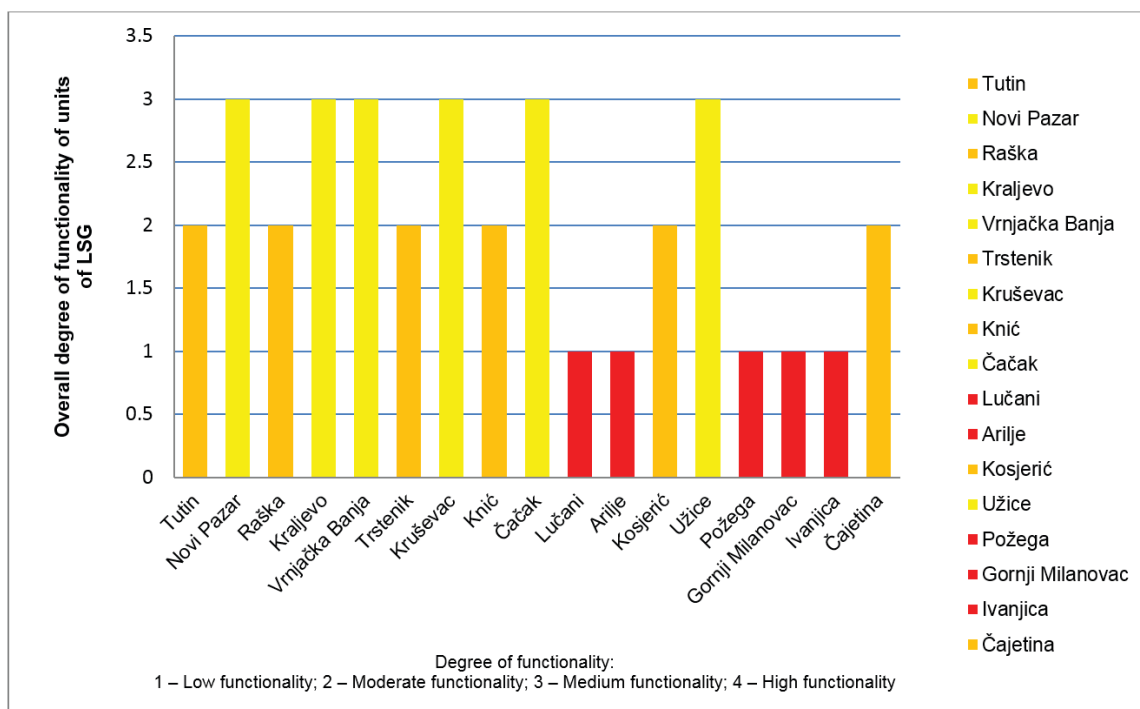


Chart 2. Overall degree of functionality of units of LSG



2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED

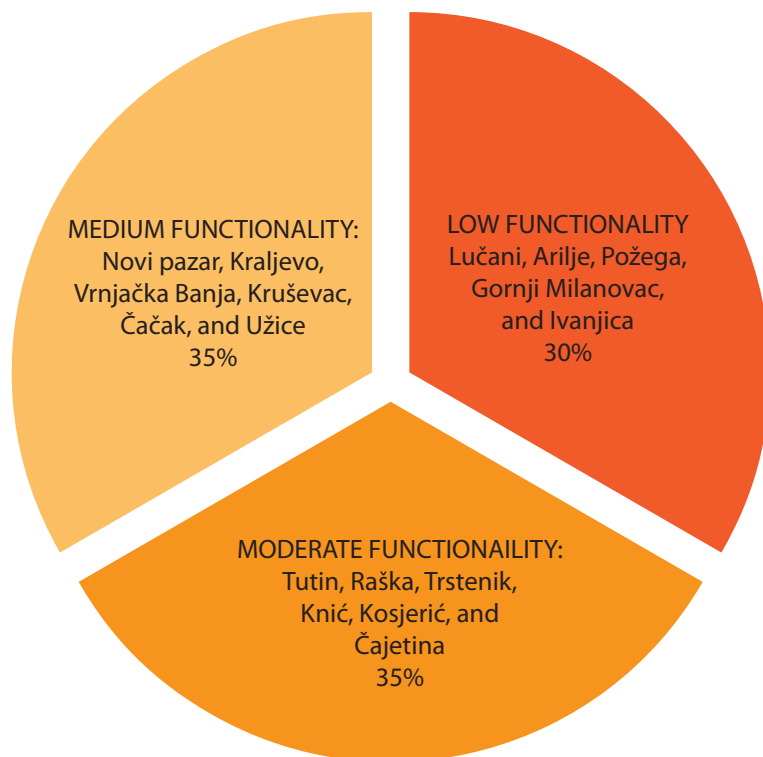


Chart 3. Local self-governments by degree of functionality

On the basis of the above graphs it is possible to conclude that there is still a lot of room for further activities in order to ensure the functionality of towns and municipalities in the Zapadna Morava watershed. With the exception of Kraljevo, which had had the relevant Department established after the earthquake of 2010, all town and municipal administrations undertook more active competences as defined by the law only after the floods of 2014.

2. PROFILES OF TOWNS AND MUNICIPALITIES OF THE ZAPADNA MORAVA WATERSHED



2.4 NGO'S

In order to form the **Association for Natural Disasters Prevention "APEN"** for the Zapadna Morava watershed (the Association brings together NGO's and individual experts in this area) a meeting was held on 2 June 2017 in Hotel „**Turist**“ in Kraljevo, supported by „**CARITAS**“ Serbia.

The meeting was attended by more than 20 participants and it expressed full support to the initiative to establish the Association, followed by the signing of the „**Initiative for joint participation of the NGO's from towns and municipalities of the Zapadna Morava watershed to establish the Association for Natural Disasters Prevention (APEN)**“.

The meeting made the following conclusions:

- In order to establish the Association APEN in the forthcoming period the **Memorandum of Cooperation** will be drafted for adoption at the next meeting. The memorandum will include the establishment of the **Coordination Body**, tasked with drafting normative acts for the future association. Members of the Coordinating Body shall come from the ranks of signatories of the Memorandum of Cooperation.
- In the course of October and November of 2017, a meeting will be organized with representatives of town/municipal councils who are in charge for sectors of environmental protection and natural disasters. The objective of the meeting will be to adopt recommendations that local budgets of units of LSG for year 2018 shall include appropriations for natural disasters preventive activities.
- By the end of 2017 the founding assembly of APEN will be organized and convened.

The Civil protection Department of the town administration of Kraljevo participated in this meeting and provided full support to the initiative to establish this Association, especially having in mind the activities that this Department implemented in the field of natural disasters risk reduction and the future cooperation in that respect.

In line with the announced activities for marking of the International Day of Disaster Risk Reduction – 13 October – the founding assembly of APEN will be convened at that time in one of the towns or municipalities of the Zapadna Morava watershed.



3. RISKS

3.1 OVERVIEW OF NATURAL DISASTERS IN THE PERIOD 2010-2017

In the period from 2010-2017 the area of the Zapadna Morava watershed, including 17 towns and municipalities, were struck by a number of natural disasters causing significant damage and consequences, both for the population and for animals and agriculture, infrastructure, real and cultural assets and the environment.

The most frequent natural disasters, which at the same time present a constant threat in terms of occurrence, and in terms of effects on people, the economy and the environment, are as follows:

- **earthquake** – in 2010 the area of Kraljevo was struck by an earthquake of magnitude 5.4 Richter; two persons were killed and more than 180 injured; the area of the Zapadna Morava watershed is part of map with the return period of 975 years (source: the NSI) of macro-seismic intensity on the surface land between VIII-IX, and some part thereof of intensity IX+;
- **flooding** – on several occasions in the period 2014-2017 this area was affected by floods which caused great damage, mostly on infrastructure; in 2014 this implied the emergency situation in the whole territory of the Republic of Serbia; due to the geomorphology of the terrain flash floods are also frequent, which are difficult to predict, and cause damage mostly on infrastructure (local roads and bridges);
- **landslides** – the terrain, including hilly-mountainous areas, the erosion processes and the lack of risk reduction measures result in constant threat of landslides; greatest damages were recorded on infrastructure, while in 2014 and 2015 housing buildings also suffered damages²;
- **snow drifts** – during winter periods between 2010-2017 in the Zapadna Morava watershed snow drifts happened on several occasions, resulting in disabling transport communication with the most remote areas of towns and municipalities (hilly-mountainous areas); since the most remote areas of towns and municipalities are mostly populated by old households (rural households), snow drifts are a major and unacceptable risk for people and animals;
- **hail** – the Balkans, thereby this area as well, are exposed to continued high risk of hail; in recent years significant damages have been recorded in agricultural crops (in the towns of Čačak, Kraljevo, and Kruševac, as well as in municipalities Ivanjica, Lučani, Arilje, Kosjerić, and Gornji Milanovac); an additional problem results from lack of financial resources and weaknesses in the anti-hail system which is not fully functional and for this reason towns and municipalities fund the procurement of anti-hail rockets, and work of anti-hail staff, although this is the competence of the national government, or specifically the NHMS (see the Law on Anti-Hail Defence, Article 16); the anti-hail season lasts from 15 April to 15 October;

² <http://civilnazastitakraljevo.rs/PDF/Izve%C5%A1taj-mart-aprili-2015-za-sajt.pdf>



- **draughts** – in the preceding period there have been no cases of proclaiming the emergency situation due to draughts, but the greatest losses as stated by experts of predominantly agricultural profession, occur exactly due to draughts; despite the fact that emergency situations have not been proclaimed, two years (2012 and 2017) were stated as dry years, where damages were suffered mostly by agricultural crops; frequent cases in summer periods of lack of drinking water, as a direct result of draughts; it can be stated that due to climate changes draught is possibly the greatest threat to people, animals, the economy and the environment in Serbia³;
- **forest fires** – some of the major fires in the territory of the Republic of Serbia in the preceding years were recorded exactly in the territory of the Zapadna Morava watershed; the risk of forest fires, especially in summer, is high and is a big threat to cultural and historical heritage and the environment; the scope of fires range from several hectares to several hundreds of hectares of forests.

The Law on Post-Disaster Reconstruction prescribes who and in what cases can proclaim the state of natural disaster, as well as measures and activities for the purpose of post-disaster recovery.

3.2 COMMON RISKS MAPS

In line with the methodological requirements for development of Natural Disasters Vulnerability Assessment⁴ should result in the final output which is the risk map. Risk maps are the basis for further planning and are a unique system of monitoring and managing emergencies (in case of interactive maps developed in programmes such as GIS).

Risk maps for the territory of the Zapadna Morava watershed have been developed within the Project BEWARE funded by the Government of Japan (landslides cadastre), in cooperation with the UNDP and the Faculty of Mining and Geology of the University of Belgrade and the Institute of Geology of Serbia. Also, the NSI developed maps of seismic hazards and the PE Srbijavode are currently developing maps of flooding prone areas.

More details on common risks maps in Appendices.

³ https://www.klimatskepromene.rs/wp-content/uploads/2017/04/Zagrevanje-useva_final.pdf

⁴ http://civilnazastitakraljevo.rs/PDF/metodologija_18_2017.pdf



4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED

4.1 CONDUCTED ACTIVITIES

By May 2017 a series of activities were conducted in order to institutionalize functional cooperation among towns and municipalities in the Zapadna Morava watershed related to joint action in risk reduction and risk management activities and speedy post-disaster recovery.

In March 2016 the first initial meeting was held of representatives of towns and municipalities of the Zapadna Morava watershed in Kraljevo. The town of Kraljevo, through the competent Civil protection Department (under its then name Department for defence and emergency situations and engineering-geologic and seismic functions) within the town administration, sent the invitation to towns and municipalities of the Zapadna Morava watershed. This initiative was supported by PIMO, SCTM and the UNDP. The meeting presented the reasons for association of towns and municipalities at the watershed level in order to define common natural disaster risks and activities to be implemented in the course of future cooperation.

The second meeting of representatives of towns and municipalities of the Zapadna Morava watershed was convened in September 2016 in Kruševac, in order to get the national level institutions involved as well. The meeting was attended by representatives of the public enterprise for water management PE Srbijavode, and representatives of the NHMS. As was the case with the first meeting, this one was also supported by PIMO, SCTM, and the UNDP. This meeting for the first time presented the model of association of towns and municipalities in the Zapadna Morava watershed. This model implies the signing of the Memorandum of Cooperation⁵ by towns and municipalities in the Zapadna Morava watershed, in order to undertake joint activities related to disaster risk reduction and emergency management and speedy and efficient post disaster recovery.

The third meeting of towns and municipalities of the Zapadna Morava watershed was held in November in Novi Pazar, in order to sign the initiative for cooperation of towns and municipalities on joint activities related to disaster risk reduction and emergency management and speedy and efficient post disaster recovery. The meeting presented the draft Memorandum of Cooperation of towns and municipalities in the Zapadna Morava watershed. At this meeting, with the technical support of SCTM, the procedure was presented to representatives of towns and municipalities of the Zapadna Morava watershed which precedes the signing of the Memorandum, and which refers to adoption by municipal assemblies and local councils the Decision to sign the Memorandum of Cooperation. Apart from representatives of PIMO, SCTM, and UNDP, the meeting was attended by representatives of PE Srbijavode, NSI, DE, FAO, and REEKO Serbia. More information of the initiative see at the webpage⁶.

The signing ceremony for the Memorandum of Cooperation of towns and municipalities of the Zapadna Morava watershed (see attached document) was organized in Kraljevo on 10 February 2017 in the presence of state officials: state secretaries of the MPALG, Ministry of Agriculture and Environmental protection, PIMO, Director of NSI, PE Srbijavode, the National geologic Institute, UNDP, and SCTM.

⁵ http://civilnazastitakraljevo.rs/PDF/Protokol_o_saradnji_gradova_i_op%C5%A1tina_u_slivu.pdf

⁶ http://civilnazastitakraljevo.rs/PDF/Inicijativa_Gradova_i_op%C5%A1tina_u_slivu.pdf

4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED



The first meeting of coordinators for the Zapadna Morava watershed was held in Vrnjačka Banja in March 2017. On this occasion the technical team was established and the secretary of the Technical team was appointed and deputy secretary. The proposed activities were endorsed for the forthcoming period and topics were agreed for the second meeting of coordinators (see conclusions from the first meeting of coordinators⁷).

The second meeting of coordinators of the Zapadna Morava watershed was organized in Čačak in April 2017. This meeting presented the possibilities for association of towns and municipalities of the Zapadna Morava watershed to work on joint infrastructure and other project, as well as the need to establish a joint project team (see conclusions of the second meeting of coordinators⁸).

In March 2017 a SCTM network was established titled „NETWORK FOR DISASTER RISK REDUCTION AND EMERGENCY MANAGEMENT“. The selected watershed secretaries shall form the technical Council⁹ which can at the invitation of the SCTM, the sectoral office or the ministry represent the positions of the membership of SCTM before the national and international partners and institutions on topics related to prevention, emergency management, civil protection, and speedy post disaster recovery, of which it shall also report to the secretary general of the SCTM and the membership at the first next meeting of the Network. In the forthcoming period the SCTM plans for this Network to be renamed as Civil Protection Network.

Insurance – within preventive activities and in order to protect the budget and with respect to the possibility to insure assets in case of natural disasters, towns and municipalities of the Zapadna Morava watershed shall in the forthcoming period sign arrangements with EVROPA RE. The first joint meeting with representatives of EVROPA RE was organized by PIMO and EVROPA RE in Čačak on 10 May 2017 attended by mayors and presidents of assemblies, or decision-makers.

During the round table within the Project SEE URBAN, which was held in Belgrade at the UN House on 16 May 2017, attended by representatives of MPALG, PIMO, SCTM, DE, Srbijavode, representatives of the Platform of Croatian districts and municipalities, representatives of UNDP Macedonia, BIH, Kosovo and Metohija, Montenegro, and coordinators of the Zapadna Morava and Kolubara watersheds, persons in charge of disaster risk reduction of towns Zrenjanin and Kragujevac, it was proposed to establish separate legal persons (associations of units of LSG or companies/agencies) in issues related to associations of towns and municipalities in the Republic of Serbia within major watersheds.

On 14 June 2017 UNDP Serbia by a separate act established an expert working groups for implementation of the regional project SEE URBAN (document attached).

⁷ Види http://civilnazastitakraljevo.rs/PDF/ZAKLJU%C4%8CCI_SA_PRVOG_SASTANKA_SLIVA.pdf

⁸ Види http://civilnazastitakraljevo.rs/PDF/ZAKLJU%C4%8CCI_SA_DRUGOG_SASTANKA_SLIVA.pdf

⁹ The professional council can have not more than 10 members, having in mind the number of watersheds in the Republic of Serbia



4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED

At the expert working group meeting held in the UNDP Serbia premises on 29 June 2017, a presentation was made on results of the assessment of capacities of local self-governments in the Zapadna Morava watershed, and potential for improved inter-municipal cooperation.

Significant engagement is expected in the forthcoming period of the Ministry of Finance, and Ministry of Public Administration and Local Government, of the Republic of Serbia, in terms of guidelines and instructions for concrete (preferably financial) cooperation of towns and municipalities in order to undertake joint activities in the field of disaster risk reduction and risk management. In that respect, a proposal was made that in cooperation with PIMO a request be defined to be submitted to above mentioned institutions.

The Civil Protection Department of the town administration of Kraljevo, with the support of UNDP, developed the webpage www.civilnazastitakraljevo.rs, with a separate section on the Zapadna Morava watershed, which can be used as the basis for development of the webpage of the Zapadna Morava watershed.

4.2 ADVANTAGES AND POTENTIALS

Through the association of towns and municipalities of the Zapadna Morava watershed a platform is established for the purposes of coordination and adequate approach to disaster risk reduction activities and speedy post disaster recovery. Activities, under the memorandum of Cooperation, will be directed to implementing general goals and specific objectives.

The benefits of association are predominantly reflected in the possibility for exchange of experiences and good practices, and joint action in the field of disaster risk reduction. This cooperation is expected to develop an adequate early warning system and risk management system in emergencies.

Of special significance is the association of enterprises, public and private, and non-government organisations. These activities are within the scope of regional chambers of commerce, development agencies, associations, etc. the activities are regulated by the Law on local Self-Government, the Law on Utilities, and the Law on Associations („Official Gazette RS“, No. 51/2009 and 99/2011 – other laws).

Benefits also include joint funds raising, from national and international sources.

4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHEDE



Objective	Benefits	Potentials
<p>More efficient development of documents falling within the competences of local self-governments: Vulnerability Plans and Protection and rescue Plans; Operational flood defence plans for water courses of category II; Long-term, mid-term, and short-term plans for development of protection and rescue systems.</p>	<p>On the basis of information exchange and building of a joint data base, workshops, and training courses preconditions are being created for improved process of documents development. Harmonisation of acts. This approach promotes the engagement of the general public, it enables faster access to information, and full consideration of issues related to disaster risk reduction and protection and rescue system. Building a uniform protection and rescue system.</p>	<p>Involvement of the general public in the process of developing these acts, and ensuring public access and comments to draft acts. This approach also sends clear messages to investors.</p>
<p>Building a uniform civil protection system: training courses, drills, equipping and action.</p>	<p>On the basis of identified needs and decisions on organisation and functioning of civil protection, training courses will begin for CP commissioners and deputies and members of general purpose CP. A separate Protocol is to define the CP at watershed level. Emphasis to be put on CP in pre-schools and schools, as well as in NGO's, such as DVD, scouts organisations, etc. This approach promotes the need to involve individuals and institutions in the CP system. Also, towns and municipalities will weaker human resources will have the opportunity through cooperation to build their capacities. Civil protection related activities in pre-schools and schools – training of teaching and non-teaching staff and children.</p>	<p>The uniform CP system is developed responding adequately to disaster risks. Possibility of equipment by applying to national and international funds.</p>



4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED

Objective	Benefits	Potentials
Developing a harmonized early warning system at the watershed level.	Uniform early warning system is to ensure for all the necessary information for the PRS, including information for individuals and institutions. Communication systems fully aligned with requirements and needs.	An adequate early warning system enables the building of adequate emergency management and monitoring. Reducing costs while at the same time increasing safety.
Planning and implementing infrastructure measures relevant to several units of LSG.	Adequate building of resilient infrastructure resistant to natural disasters.	Easier and faster access to national and international funds.
Improving the damage and needs assessment process and process of post disaster recovery.	The recovery process is fast and efficient with emphasis on sensitive population groups. Recovery is based on build back better principles.	Fast and adequate damage and needs assessment for easier and faster access to national and international funds.

Table 5. Objective, Benefits, Potentials

4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED



4.3 NEEDS AND FUTURE PLANS

The needs of towns and municipalities of the Zapadna Morava watershed are based on the following:

- Professional training of local officers in charge of risk reduction and risk management and post disaster recovery, with special emphasis on fighting climate change;
- Drafting and harmonization of regulations falling within the competences of local self-governments, based on national laws;
- Determining the necessary human and material resources at the level of LSG and at the watershed level;
- Development of project and design documentation and/or project proposals under calls by international donors;
- Mobilisation of resources for implementation of priority measures.

Plans are based on identified needs, in the form of activities defined in the Memorandum of Cooperation. In the long-term, plans are directed towards strengthening local capacities and establishing cooperation among units of local self-government in the field of disaster risk reduction and fighting climate change. During the period 2017-2018 it is planned to implement the following activities:

- Clear positioning and increasing visibility;
- Defining partners in order to implement planned activities;
- Defining the manner of financing by towns and municipalities of the Zapadna Morava watershed;
- Training courses in the field of disaster risk reduction and risk management and post disaster recovery and fighting effects of climate change;
- Joint actions within the week marking the International DRR Day (document attached).

The first activity will be the development of the webpages, both for visibility purposes and for establishment of a data base which is to serve as the basis for implementation of activities defined in the memorandum of Cooperation. In parallel with this activity, work on designing the watershed logo. Inventory of most critical infrastructure, list of priority projects and data collection for the common risks maps.

With respect to training, work will evolve in two directions:

- Training of staff (persons in charge) of risk reduction and risk management and post-disaster recovery and fight against climate change (legal obligations under the competences of units of local self-government);
- Training of commissioners and deputy commissioners and members of general purpose civil protection (legal obligations under the competences of units of local self-government).



4. NETWORKING OF TOWNS AND MUNICIPALITIES IN THE ZAPADNA MORAVA WATERSHED

In cooperation with PIMO, UNDP, the WB, and SCTM training courses are planned during September for representatives of local self-government units from the watershed area for use of GIS, and for the PDNA methodology to be used in the process of post disaster damage and needs assessment.

For training purposes, the town of Kraljevo established the Regional Centre for Civil Protection in Rudno¹⁰. The Memorandum of Cooperation of towns and municipalities of the Zapadna Morava watershed (Article 5) stipulates that cooperation of towns and municipalities in training courses for general purpose civil protection and training of CP commissioners and deputy commissioners is to be delivered in the regional centre Rudno, and in other facilities of towns and municipalities planned for this purpose.

Training is delivered in accordance with the Law on Emergencies, on the basis of Rulebook on training, plans and programmes and normative training aids and equipment for training of CP members („Official Gazette RS” No. 8/13), while equipment is provided on the basis of the Decree on mandatory aids and equipment for personal, common and collective protection against natural and other disasters („Official Gazette RS” No. 3/11 and 37/15).

Short-term plans of towns and municipalities within the Zapadna Morava watershed are linked to the Week marking the International DRR Day – 13 October 2017 (Appendix 10), as well as planning budget resources for procurement of equipment for personal and common protection in order to equip general purpose CP units. In discussions with representatives of MPALG and SCTM solutions are being sought for joint procurement of anti-flooding systems.

Implementation of these activities will to a great degree determine the methods of future inter-municipal cooperation in terms of joining budget funds. A separate activity is the volunteering action „100 as 1” which will, with the support of the coordinators of the Zapadna Morava watershed and the coordinator of the Youth Office of towns and municipalities of the Zapadna Morava watershed engage all available resources of local self-governments (public utility enterprises, citizens’ associations, private companies, sub-municipal units, etc.) to clean up the water courses of category II, in order to reduce risks of flash floods.

For this action students of the Faculty of Organisational Sciences in Belgrade developed case studies within their assignments. The best case studies were evaluated by a technical jury and will be used as the basis for action planning.

It should be noted that in August 2017 an agreement was signed between the town of Kraljevo and the faculty „Futura” of the Singidunum University in Belgrade, defining the principles of future cooperation on joint projects of interest for DRR, climate change and environmental protection.

The future cooperation will be based on activities of the Civil Protection Department and training programmes implemented by town administration in Rudno, where it is planned to establish a scientific-teaching base for students and associates of this faculty.

¹⁰ http://civilnazastitakraljevo.rs/PDF/Re%C5%A1enje_upravljanje_objektom.pdf



5.1 AREAS FOR ACTION

The basis for action/association of towns and municipalities, and for cross-border cooperation in order to undertake joint activities aimed at disaster risk reduction, comes from a whole set of international and national documents. The adoption of the National Disaster Risk Reduction Strategy and the Action Plan for its implementation is of great significance for units of local self-government in the Republic of Serbia. This document defines the goals, activities, institutions in charge and the necessary financing and sources of funding.

Below is a presentation of the Sendai Framework and the Human Development Report: the Invisible Face of Resilience, 2016 which can serve the purpose of enhancing the future cooperation between towns and municipalities in the Western Balkans.

Priority Areas for Action under the Sendai **Framework**:

- Understanding disaster risks
- Strengthening the system for management of disaster risks in order to manage risks
- Investing in disaster risk reduction in order to strengthen resilience
- Improving readiness for effective response in case of disaster and “building back better” during recovery, rehabilitation and reconstruction

Recommendations defined in the **Human Development Report: the Invisible Face of Resilience 2016 Serbia**:

Resilience capital index:

- Natural capital
- Economic capital
- Physical capital
- Human capital
- Social and institutional capital

How to strengthen social capital as a resource for disaster risk reduction:

- Communication and information exchange in preventing and reducing risks
- Cooperation, coordination, and partnerships as means to access resources and competences
- Volunteering and collecting humanitarian assistance
- Gender and social inclusion
- Trust

Improving the legal and institutional framework for disaster risk reduction:

- Financing mechanisms
- Legal framework



5. CONCLUSIONS AND RECOMMENDATIONS

5.2 NORMATIVE FRAMEWORK

The legal framework for establishment of inter-municipal cooperation on watershed level is provided in the Law on Emergencies.

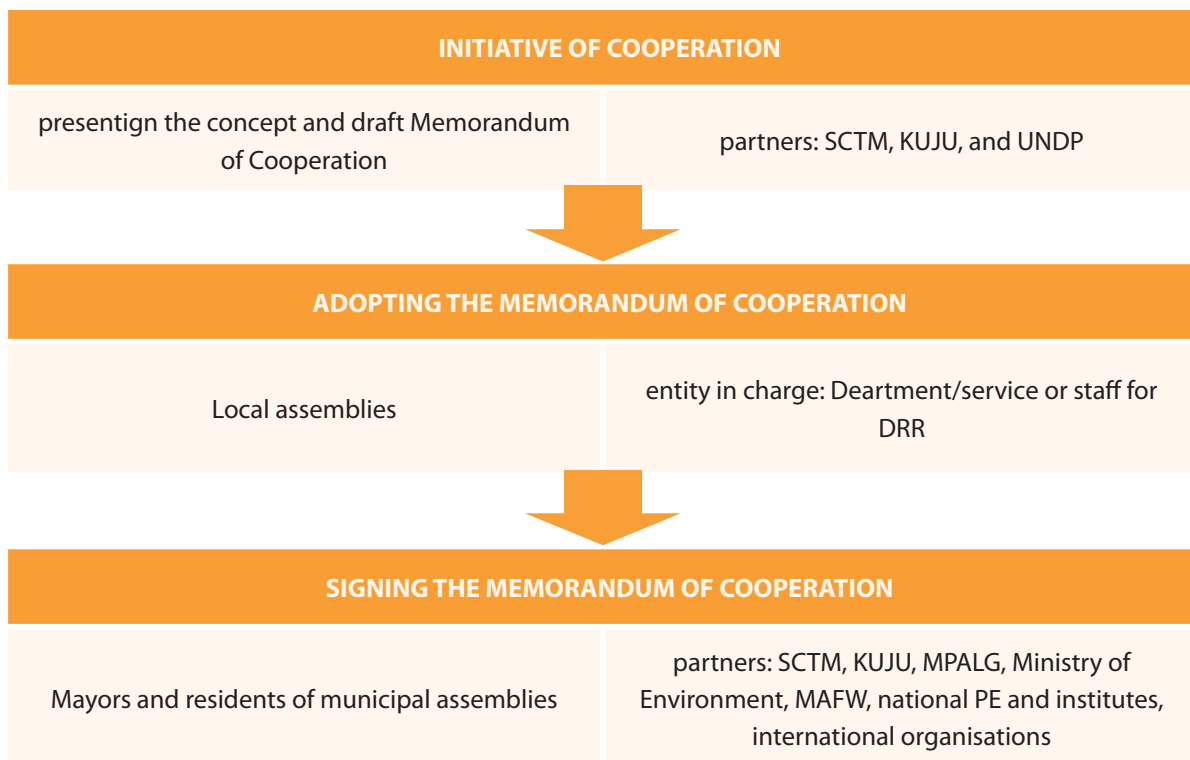
The Law on Utility Services, Articles 9-12, prescribes in more detail the possibility for performing utility services or certain tasks within utility services in cooperation between one and more units of local self-government and entities performing utility services. It also defines the possibility of establishing inter-municipal federations for utility services, companies, or associations founded by municipalities participating in cooperation.

There are a number of practical examples for such inter-municipal cooperation which refer mostly to the area of water supply, of waste disposal, or regional landfills. In line with the practice so far, it is possible also to come up with alternative solutions in the area of disaster risks reduction and risk management, and in the field of understanding and fighting climate change.

The starting points for this are the following documents: the National Strategy for Disaster Risk Management and the Sendai Framework, as an international document.

On the basis of the model established by towns and municipalities of the Zapadna Morava watershed, inter-municipal cooperation based on the principle of association at watershed level happens in two stages:

FIRST STAGE – adoption and signing of the Memorandum of Cooperation



5. CONCLUSIONS AND RECOMMENDATIONS



SECOND STAGE – establishing the technical team consisting of coordinators (persons appointed by towns and municipalities as persons in charge of cooperation by relevant acts of mayors or presidents of municipal assemblies).

The future cooperation of towns and municipalities should be based on developing and harmonizing documents relevant to disaster risk reduction and management and fast post-disaster recovery, which are the competences of local self-government on the basis of legal provisions.

Regretfully, practice has shown that often once certain acts are adopted activities stop. It also often happens that documents are not updated when necessary or that plans and programs assume non-existing or activities which are not practically possible for several reasons. Most often the reason for failure to implement adopted plans is the lack of human and material resources.

In that respect, it is of utmost importance in the future normative acts relevant to DRR and climate change which can lead to natural disasters to set detailed realistic and achievable goals and measures and actions for their achievement. Additionally, inter-municipal cooperation can produce examples of well-defined policies and harmonization of policies in joint efforts to establish efficient systems that can respond adequately to future natural disasters.

5.3 INSTITUTIONAL FRAMEWORK

In the forthcoming period, and in line with the legal changes and competences it is necessary to consider the compatibility between national and local level, by possibly introducing the regional level which would not be only of administrative nature, in terms of administrative districts, but in terms of regional centres at major river watersheds. This would create the necessary requirements for an integrated PRS which would functionally be capable of responding to disaster risks.

There is need also to include climate change experts and persons from units of local self-government in charge of these issues. Thus, there is need for more intensive cooperation and education in order to increase knowledge and understanding of the processes of DRR and risk management.

With respect to the local government level, it is of key importance to have persons in town and municipal administrations who are in charge of DRR to not be overburdened with other tasks outside of the tasks under the Law on Emergencies and other laws relevant to DRR.



5. CONCLUSIONS AND RECOMMENDATIONS

The following table presents an overview of possible institutions within watersheds, with advantages and disadvantages (under the current legal limitations or weaknesses):

Model	Advantages	Disadvantages	Recommendations
Association based on Protocols (Memorandums).	This form of association can be achieved relatively swiftly, without possible contractual obligations for towns and municipalities and it enables joint application for projects both under national and international calls for proposals.	Any association of funds implies the signing of specific contractual obligations, and recognition by local budgets, which requires synchronization, additional activities, and above all political support by each unit of SLG.	In order to improve cooperation between towns and municipalities changes are needed in the Law on local Self-Government, and signing of specific Memoranda on cooperation.
Institution	Advantages	Disadvantages	Recommendations
Establishing specific agency for disaster risk reduction and management (after the model of the Regional Development Agency).	Establishment of the agency would open up potential for better approaches to processes of risk reduction and management and better management of human and material resources; It is also possible to have project-based financing, as well as building special capacities for training.	Under the existing laws and bylaws and the prohibition of recruitment and plans for right-sizing of the public administration, any new recruitment is not possible; According to the existing legal framework, this raises the issue of legality or competences of an agency of this kind, because source competences defined by the law cannot be delegated except in cases when the law explicitly so prescribes.	Legislative changes or the adoption of a new law regulating DRR would be useful, as well as defining founding rights and obligations of towns and municipalities.

5. CONCLUSIONS AND RECOMMENDATIONS



Model	Advantages	Disadvantages	Recommendations
Establishing a separate working body – Inter-municipal commission or association of units of LSG (after the model of the Croatian Platform of districts and municipalities).	Possibility to participate in international competitions, as there is a separate legal person; budgets of such organisations (associations) are defined by founding acts, and the founders are units of LSG which delegate to the working bodies their representatives; Independence in management.	Co-financing at international competitions is limited.	Separate registration in the Business registry (APR); as needed, the founders (units of LSG) can transfer financial resources from their budgets, based on separate agreements.
Establishing a regional training centre.	The Regional Centre would serve the training needs and civil protection drills falling within the competences of local governments, and would provide continued training or staff in DRR; Possibility to organize seminars and training in other fields: damage and needs assessment, use of new technologies, GIS, developing project proposals, etc.	The existing laws and bylaws do not recognize the fields of civil protection and DRR as areas for continued professional training.	It is necessary to improve the existing legislation in order to recognize civil protection and DRR; Make use of existing capacities, examples: Training centre in Rudno and research centre Petnica, etc.; Financing of regional centres is possible under the model used for regional centres for continued training of teaching staff (Project result).

Table 6. Overview of possible institutions within watersheds



5. CONCLUSIONS AND RECOMMENDATIONS

5.4 FUNCTIONAL FRAMEWORK FOR JOINT ACTIONS BY UNITS OF LSG

This section will present an overview of necessary activities of units of LSG in order to establish a functional framework in accordance with the Memorandum of Cooperation:

- Defining specific joint activities (this requires the development of the long-term, mid-term, and short-term plans of cooperation of towns and municipalities, specifying: activities, entities in charge, partners, funds needed, evaluation and deadlines, and methods of reporting);
- Links at the level of professional services of local governments dealing with DRR issues;
- Links at the level of local government institutions relevant to DRR processes;
- Links with citizens' associations and private companies relevant to DRR processes;
- Links relevant to project activities;
- Links within the SCTM Network for DRR (the future civil protection network).

5.5 BROADER USE OF THE TOWNS AND MUNICIPALITIES NETWORKING MODEL IN WATERSHEDS ACROSS SERBIA

The model of association of towns and municipalities by watersheds of major rivers in Serbia and by disaster risks has been accepted by the professional public. In the Republic of Serbia it is possible to sign 10 memorandums of Cooperation of towns and municipalities for watersheds of major rivers and joint disaster risks, as follows:

- Zapadna Morava Watershed
- Južna Morava Watershed
- Kolubara Watershed
- Velika Morava Watershed
- Lower Danube Watershed
- Timok Watershed
- Drina Watershed
- Sava Watershed
- Upper Danube Watershed, and
- City of Belgrade, as a separate organizational unit (this watershed would include city municipalities which do not belong in other watersheds).

5. CONCLUSIONS AND RECOMMENDATIONS



Networking of towns and municipalities by watersheds requires the support of relevant national institutions and relevant organisations/associations, primarily:

- PIMO;
- SCTM;
- MPALG;
- MEP;
- MAFWM;
- DE MoI;
- PE (Srbijavode, Srbijašume, EPS ...);
- NSI;
- NHMS;

as well as of the EU and international institutions relevant to DRR and fighting the negative effects of climate change:

- UNDP;
- FAO;
- UNICEF;
- The World Bank;
- „CARITAS“ Serbia, and others.

KV Novosti – „ON LINE“ project “The Power of Togetherness to Success”, funded by the Ministry of Culture and Information, shall present to the public the activities of the Zapadna Morava watershed in 36 different media contents.

Apart from public profiling of activities of the Zapadna Morava watershed, the project shall provide the description of the current situation, define the relevance and identify problems which the target group(s) is facing and the resulting needs and shall define qualitative/quantitative indicators of the existing situation using available data, experiences and research.

Project results shall contribute to further networking activities of towns and municipalities by watersheds of major rivers. The project shall last until the end of 2017.



5. CONCLUSIONS AND RECOMMENDATIONS

5.6 POSSIBILITIES OF CROSS-BORDER AND REGIONAL NETWORKING OF TOWNS AND MUNICIPALITIES FOR THE PURPOSES OF DISASTER RISK REDUCTION

In line with project activities within the project SEE URBAN and the need for linkages among towns and municipalities in the region related to joint natural and other disaster risks, and in order to enable exchange of experiences there is opportunity in the forthcoming period to establish a network of towns and municipalities of the Western Balkans region in order to strengthen capacities to adequately respond to future disasters.

This form of communication enables also exchange of information within early warning, and building of adequate early warning systems. Additionally, through learning of best practices and new technical-technological solutions a foundation is created for improving the present situation in order to build safer societies from the perspective of natural and other disasters.

For specific institutional links, in the forms of Agreements or Memorandums of cooperation, it is necessary to obtain consents of the relevant ministries of foreign affairs and engagement of local governments and partner organisations.

However, joint participation in preparing project proposals and applying for funds of international donors, regional cooperation is very important, especially for calls for projects of transnational cross-border cooperation programmes, such as the Danube or Adriatic – Ionian, or calls under the Civil protection mechanism of the EU or Erasmus+ (alliances of sectoral skills, strategic partnerships, volunteer programmes, etc.).



- Appendix 1** Questionnaire
- Appendix 2** Decision establishing the expert group for implementation
- Appendix 3** Decision providing the facility in Rudno
- Appendix 4** Initiative for establishment of APEN
- Appendix 5** Draft Memorandum of Cooperation of towns and municipalities of the Zapadna Morava watershed
- Appendix 6** Initiative for signing of the Memorandum of Cooperation
- Appendix 7** Signed Memorandum of Cooperation
- Appendix 8** Conclusions of the first meeting of coordinators of the Zapadna Morava watershed
- Appendix 9** Conclusions of the second meeting of coordinators of the Zapadna Morava watershed
- Appendix 10** Proposed activities to mark the International DRR Day
- Appendix 11** Common risks maps:
- <http://geoliss.mre.gov.rs/beware/?lang=sr>
 - http://civilnazastitakraljevo.rs/PDF/Poplavna_podru%C4%8Dja_Srbija.pdf
 - http://www.seismo.gov.rs/Seizmicnost/Karte_hazarda.htm

Title/Beneficiary

South East Europe Urban Resilience Building Action Network (SEE URBAN)

United Nations Development Programme (UNDP)

One United Nations Plaza, NY 10017, New York, USA

www.undp.org

Partners:

1) Croatian Counties / Cities DRR Platform (CCCP)
Croatia

www.platforma-hzg.hr

2) Centre for Development of the South - East Region (CDSER)

FYR of Macedonia

www.rdc.mk

3) Association of Municipalities and Cities of FBiH (AMC)

Bosnia and Herzegovina

www.sogfbih.ba

4) Association of Local Authorities of RS (ALC)
Bosnia and Herzegovina

www.alvrs.com

Objective

Urban Resilience to Disasters

Summary of the project

SEE URBAN project primarily targets local level Disaster Management Authorities in 7 countries/territories of South East Europe aiming to formalize local level cooperation in urban DRR (both at city / municipality / county and cross-border / regional level). In doing so, project is to, inter alia, develop SEE URBAN electronic DRR library and strengthen local level DRR practitioners' knowledge on urban risks. Besides that, public awareness campaigns on urban DRR risks will be implemented which will be beneficial for citizens and all other socio-economic sectors vulnerable to urban disasters. And finally, as the work of "local level DRR platforms" is to feed into national DRR platforms a network of urban local level DRR stakeholders will be formed at the regional level of South East Europe.

EC contribution: €429.661,00

Financing rate: 74,47 %



Funded by
European Union
Humanitarian Aid &
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*Empowered lives.
Resilient nations.*



**CROATIAN COUNTIES
CITIES DISASTER
RISK REDUCTION
PLATFORM**