



# Country reports based on template for measures data and information collections

## Deliverable 4.3.2

Draft 1, December 31, 2017



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## Acknowledgements

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# Contents

## ACKNOWLEDGEMENTS0

## CHAPTER 1 – BACKGROUND INFORMATION AND INTRODUCTION .....2

BACKGROUND INFORMATION AND DOCUMENTS..... 2

DATA AND INFORMATION COLLECTION AND REPORTING..... 2

GUIDANCE ON THE INTERPRETATION ..... 2

*Reference date is a best estimate of the situation towards the end of 2021.*..... 2

*Measures implementation* ..... 3

## CHAPTER 2 – MEASURES REPORTED (BY 2021) .....4

## CHAPTER 3 – TRB COUNTRIES REPORTS .....4

# Chapter 1 – Background Information and Introduction

## Background information and documents

In addition to the Danube River Basin wide agreed significant water management issues the ICPDR Tisza Group identified that integration of water quality and quantity issues are relevant for Tisza River Basin and has to be considered during the preparation of the Integrated Tisza River Basin Management Plan. Recognising the importance of water quantity issues and its significant impacts on water quality, the ICPDR Tisza Group has developed an integrated approach taking into account water quality, water quantity-related issues and their interactions. As a result, the Tisza Group outlined visions and management objectives relevant for the agreed interlinked issues and identified measures which will have positive impacts on water quality and quantity and on aquatic ecosystems. These measures, visions and recommendations are based on data and information provided by Tisza countries and are elaborated in the first Integrated Tisza River Basin Management Plan– chapter 8.5 (2011).

During the 2012 the ICPDR Tisza Group developed Template for TRB Integration measures and collected data in line with this template. The country reports are summarized in: Annex 7 -Detailed information on the status/progress of integration measures (filled templates of Ukraine, Romania, Hungary, Slovakia, and Serbia related to integration measures), Version: draft 2, August 8, 2012 (ICPDR).

## Data and Information collection and reporting

Please use the formatting for reports in line with (Annex\_5\_JOINTISZA PUBLICATIONS template\_final\_mod\_Dec2017.docx sent by Imola Koszta WP 2 Leader ) attached with this report;

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Some of the TRB integration measures are collected under the activity 5.2;

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Guidance interpretation of “not started”, “ongoing” and “completed” for different types of measures followed approach agreed by the EU Water Directors.

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## Measures implementation

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*If measure is already included or planed to be included under the other WP or SWMI, please refer to that report.*

## Chapter 2 – measures reported (by 2021)

Within this activity data and information on following measures at the TRB countries that are relevant to integrated and sustainable water management are collected:

- Horizontal measures;
- GWBs measures;
- Solid plastic waste related measures;
- Draught and water scarcity measures; and
- Climate change measures

## Chapter 3 – TRB countries reports

Given the complexity of the project and holyday season in December, at the moment only two countries submitted their reports on measures.

These reports are appended with this summary for Ukraine (Annex 1) and Serbia (Annex 2).

# Annex 1: UKRAINE report on measures relevant for Water Quantity & GWBs

## Activity 4.3

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# Report on measures relevant for water quantity and GWBs quality and quantity

## Country Report: Ukraine

The first Draft, December 20, 2017



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## Acknowledgements

Lead author	<b>Eduard Osiysky</b> , Tisza River Basin Authority, Ukraine
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# Contents

<b>ACKNOWLEDGEMENTS .....</b>	<b>1</b>
<b>CHAPTER 1 – BACKGROUND INFORMATION AND INTRODUCTION .....</b>	<b>3</b>
BACKGROUND INFORMATION AND DOCUMENTS .....	3
DATA AND INFORMATION COLLECTION AND REPORTING.....	3
GUIDANCE ON THE INTERPRETATION .....	3
<i>Reference date is a best estimate of the situation towards the end of 2021. ....</i>	<i>3</i>
<i>Measures implementation .....</i>	<i>3</i>
<b>CHAPTER 2 – HORIZONTAL MEASURES (BY 2021) .....</b>	<b>4</b>
<b>CHAPTER 3 – GWBS MEASURES (BY 2021) .....</b>	<b>7</b>
GWBS QUALITY GWBS QUANTITY .....	7
<b>CHAPTER 4 -SOLID PLASTIC WASTE-RELATED MEASURES .....</b>	<b>7</b>
<b>CHAPTER 5 – DROUGHT AND WATER SCARCITY MEASURES (BY 2021) .....</b>	<b>9</b>
<b>CHAPTER 6 – CLIMATE CHANGE MEASURES (BY 2021).....</b>	<b>12</b>
<b>REFERENCES .....</b>	<b>0</b>

# Chapter 1 – Background Information and Introduction

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## Chapter 2 – Horizontal measures (by 2021)

*Table II.1: Country name TRB relevant measures*

Title of proposed measure	Status of the measures estimated towards the end of 2021			
	Not started	Planning ongoing	Implementation is ongoing	Completed
<b>International coordination:</b> ICPDR - EGs, further engagement with bilateral commissions addressing water management in the Tisza River Basin, etc.			yes	
<b>Incentives:</b> Development of appropriate long-term compensation schemes for land owners in the event that their land is used for wider water management purposes, such as flood protection, improving natural values, water retention	yes			
<b>Communication and consultation</b> To identify measures that are integrating different objectives and benefits, it is necessary that the relevant competent authorities are working together from the early stages of development onwards. Therefore, inter-ministerial (and/or inter-sectorial) committees or work groups could be established that prepare decisions and coordinate implementation.		yes		
<b>Any other</b> (please specify)?				

#### Additional information on the indicated measures

Please give short description of the planned measure (spatial relevance, title, short description):

.....

#### 1. International coordination: ICPDR -EGs, further engagement with bilateral commissions addressing water management in the Tisza River Basin, etc.

*Implementation is on-going at the level of the Plenipotentiaries with neighbouring Tisza countries as well as in frame of ICPDR.*

*The list of agreements is as follows:*

- *Agreement between government of Ukraine and government of Slovak Republic on issues of water management in boundary waters – June 15, 1994*
- *Agreement between the Government of the Republic of Hungary and the Government of Ukraine on water management issues related to frontier waters – November 11, 1997*
- *Agreement between the Government of Ukraine and the Government of Romania on co-operation in the field of water management on transboundary waters – September 30, 1997.*

## 2. Incentives: Development of appropriate long-term compensation schemes for land owners in the event that their land is used for wider water management purposes, such as flood protection, improving natural values, water retention

*Ukrainian part of the Tisza is by two-thirds is mountainous, so existing land plots which could be used for agriculture are highly valuable. However, at present, there is no legal scheme of long term compensation to land users.*

*At present, there are three potential projects on dry polders, which can be implemented if long-term compensation schemes become operational:*

- Planned dry polder in Borzhava valley in village Berezhnyky (Svalyava rayon). It was not implemented because of the denial of land owners to provide land for the polder.*
- Planned dry polder at Irshavka in village Zagattya (Irshavsky rayon). It was not implemented because of the denial of land owners to provide land for the polder.*
- Planned dry polder at Chetfolvo-Vary. It was not implemented because of the denial of land owners to provide land for the polder.*

## 3. Communication and consultation

In 2017, the Ministry of Ecology and Natural Resources of Ukraine adopted the order “**On Approval of the Standard Regulation on the Basin Councils**”. Now it is planned to establish the basin councils and to start conduct relevant consultations.

## Chapter 3 – GWBs Measures (by 2021)

GWBs quality

GWBs quantity

No measures are planned, because no monitoring data are available.

## Chapter 4 -Solid plastic waste-related measures

Table IV.1: Country name TRB relevant measures

Title of proposed measure	Status of the measures estimated towards the end of 2021			
	Not started	Planning ongoing	Implementation is ongoing	Completed
Education and awareness raising measures			yes	
River clean-up actions to installing collection and recycling facilities			yes	
Any other (please specify)?	N/A			

### Additional information on the indicated measures

Please give short description of the planned measure (spatial relevance, title, short description):

#### Education and awareness raising measures

Such measures are conducted permanently, also with the Danube Day.

#### River clean-up actions to installing collection and recycling facilities

Zakarpattya has **Strategy of Waste Management** developed: which envisages separate collection, sorting and waste recycling.

- The strategy proposes that the 13 rayons in the Oblast are divided into four distinct sub-regions (Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv) because the sharing of waste management facilities is the most efficient approach. The technological basis for the strategy can be summarised as:-
  - Organised municipal waste collection on the territory of the whole region;
  - Construction of four regional landfills in Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv rayons;
  - Construction of two transfer stations in Mijgiryia and Rahiv rayons;
  - Separate collection of recyclable waste will be organised in all main settlements in all main settlements of the districts, and in settlements with population exceeding 3000 residents;
  - Four sorting facilities will be established in Uzhgorod, Mukachevo, Vinogradiv, and Tiachiv which will receive the separately collected waste. An additional glass sorting line is envisaged at the

sorting facility in Uzhgorod where separately collected glass waste will be treated according to the demands of glass recycling plants; and

- The progressive establishment of centralised composting sites in every district.
- The strategy proposes that an inter-municipal association is formed at the regional level for managing the new waste management system and, indeed, for coordinating waste management activities throughout Zakarpattia Oblast;
- The total investment cost of the proposed waste management options over a 14-year investment period (2013-2026) is UAH 1,261 million. This is equivalent to UAH 255/tonne of the total waste generated over this period. The operational costs rise from UAH 26 million in 2014 to 104 million in 2026. The operational cost cash flow is equivalent to UAH 262/tonne of waste generated over the assessment period.

At present, there are 44 centres of separate collection of recyclables (paper, PET, glass and metal), but they do not cover the whole territory of the Oblast. Also there are no centres of hazardous waste collection (batteries, lamps etc.).

In Yanoshi (Beregivsky rayon), at present the plant on sorting and mechanical processing of solid communal waste with the capacity 20 thousands per year, which makes 70% from the total amount of waste, generated in the rayon.

Planned actions:

- At present, a new scheme of planning of Beregivsky rayon is planned, where new zones of landfills will be planned.
- In 2018-2019 it is planned to construct waste processing plant in Pistryalovo village (Mukachevo rayon).
- There are also discussions to construct a plant to conserve, sort and recycle (without right to burn) in Tyachiv.
- There is a feasibility study on construction of waste sorting plant with the capacity up to 100 tons per year.



## Chapter 5 – Drought and water scarcity measures (by 2021)

Table V.1: Country name TRB relevant measures

Title of proposed measure	Status of the measures estimated towards the end of 2012			
	Please indicate whether at the country level any specific action/measures has been taken related to the listed point (please specify the title of the measure according to the ongoing national development)			
	Not started	Planning ongoing	Implementation is ongoing	Completed
Establishment of common indices to define droughts and to get a better insight of water scarcity across the Tisza Basin.	yes			
Maps with water scarce areas identified for the Tisza Basin.	yes			
Collection of more precise information on irrigation and groundwater depletion is needed on the future uses.		yes		
Changes in agricultural practices		yes		
Reduction of leakage rates		yes		
Improving irrigation efficiency		yes		
Development of an agreed upon groundwater model to assess depletion	yes			
Coordinated approach to water allocation and the application of economic incentives or tools such as water pricing		yes		
Overview of the methodologies used to establish national minimum ecological flows to be prepared (to lead to agreement on comparable limits and approaches to managing low-flow situations)	yes			
Establishment of comparable national approaches to monitor and report groundwater abstraction to ensure the better	yes			

Title of proposed measure	Status of the measures estimated towards the end of 2012			
	Please indicate whether at the country level any specific action/measures has been taken related to the listed point (please specify the title of the measure according to the ongoing national development)			
	Not started	Planning ongoing	Implementation is ongoing	Completed
management and regulation of groundwater resources				
Any other (please specify)?				

#### Additional information on the indicated measures

Please give short description of the planned measure (spatial relevance, title, short description):

**Collection of more precise information on irrigation and groundwater depletion is needed on the future uses.**

Because of permanent reorganization of the geological service in Zakarpattya Oblast, reforms in agricultural sector and lack of coordination and reporting of the groundwater users, there is no system of the monitoring of groundwater depletion. In the past, each user needed to fill a special reporting form on groundwater use 7 ГР, but it was cancelled. The reporting of the water used for irrigation is provided only by water users, who applied for the special water use permit, whereas the majority of individual farmers do not provide any reporting.

#### Changes in agricultural practices

The following changes have been started:

- Shift to drop irrigation
- Scientific approach to land use (analysis of soils, introducing organic fertilizers, surveys of groundwater levels)
- Installation of automatic hydrometeorological warning stations to protect the harvest against unfavourable weather conditions (significant precipitation, hails)
- Restoration of gardening and vineyards
- Early vegetables growing
- Agricultural tourism
- Growing of exotic animals (ostriches, deer, quails), exotic fruits (kiwi (Storozhnitsya), persimmons (Kholmovets) and restoring of traditional animal husbandry (water buffalo and sheep breeding)
- Organic agriculture.

#### Reduction of leakage rates

The current leakage rates are high because of outdated infrastructure. The worst situation is with Mukachevo WWTP, where water losses are up to 70%. The Ukrainian standards adopted during Soviet Union were as follows: 30% of leakage is acceptable.

At present, with new policy of the water pricing (significant increase) the measures are being developed to reduce leakages and relevant financial losses.

### **Improving irrigation efficiency**

The efficiency is increased due to the fact, that more and more farmers use drop irrigation.

## Chapter 6 – Climate Change measures (by 2021)

Table VI.1: Country name TRB relevant measures

Title of proposed measure	Please provide descriptive information
Status of climate change adaptation strategies and guidelines at national level (status of the adaptation process)	There are no climate change adaptation strategies and guidelines at national level at present
Provisions/ stipulations in the strategies and guidelines in connection to the water sector.	
Any other (please specify)?	

## References

Tisza BUVR materials, raw data of farmers

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# Annex 2: Serbia - report on measures relevant for Water Quantity & GWBs

## Activity 4.3

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# Report on measures relevant for water quantity and GWBs quality and quantity

## Country Report: Serbia

The final draft, December 25, 2017



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## Acknowledgements

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# Contents

<b>ACKNOWLEDGEMENTS .....</b>	<b>1</b>
<b>CHAPTER 1 – BACKGROUND INFORMATION AND INTRODUCTION .....</b>	<b>3</b>
BACKGROUND INFORMATION AND DOCUMENTS .....	3
DATA AND INFORMATION COLLECTION AND REPORTING .....	3
GUIDANCE ON THE INTERPRETATION .....	3
<i>Reference date is a best estimate of the situation towards the end of 2021.</i> .....	3
<i>Measures implementation</i> .....	4
<b>CHAPTER 2 – HORIZONTAL MEASURES (BY 2021) .....</b>	<b>5</b>
<b>CHAPTER 3 – GWBS MEASURES (BY 2021) .....</b>	<b>6</b>
GWBS QUALITY GWBS QUANTITY .....	6
<b>CHAPTER 4 -SOLID PLASTIC WASTE-RELATED MEASURES .....</b>	<b>6</b>
<b>CHAPTER 5 – DROUGHT AND WATER SCARCITY MEASURES (BY 2021) .....</b>	<b>7</b>
<b>CHAPTER 6 – CLIMATE CHANGE MEASURES (BY 2021) .....</b>	<b>9</b>
<b>ABBREVIATIONS</b>	
<b>REFERENCES</b>	

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## Chapter 2 – Horizontal measures (by 2021)

Table II.1: Serbia TRB relevant measures

Title of proposed measure	Status of the measures estimated towards the end of 2021			
	Not started	Planning ongoing	Implementation is ongoing	Completed
<b>International coordination:</b> ICPDR - EGs, further engagement with bilateral commissions addressing water management in the Tisza River Basin, etc				
<b>Incentives:</b> Development of appropriate long-term compensation schemes for land owners in the event that their land is used for wider water management purposes, such as flood protection, improving natural values, water retention				
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<b>Any other</b> (please specify)?				

### Additional information on the indicated measures

**Implementation is ongoing** - Regarding international coordination Republic of Serbia is involved in all activities within the ICPDR Tisza Group and all other groups. Bilateral cooperation with Romania and Hungary is ongoing. Bilateral cooperation between Republic of Serbia and neighboring countries in the TRB (Hungary and Romania) exists more than 60 years.

## Chapter 3 – GWBs Measures (by 2021)

GWBs quality

GWBs quantity

TRB GWB datasets are uploaded on DanubeGIS and relevant measures are included in them. ICPDR IMGIS Serbian expert(s) verified them.

## Chapter 4 -Solid plastic waste-related measures

Table IV.1: Serbia TRB relevant measures

Title of proposed measure	Status of the measures estimated towards the end of 2021			
	Not started	Planning ongoing	Implementation is ongoing	Completed
Education and awareness raising measures				
River clean-up actions to installing collection and recycling facilities				
Any other (please specify)?	N/A			

### Additional information on the status / progress end of 2021

Solid plastic waste related measures are addressed in various documents at the national level. At the present, the requirements of the relevant EU directives are transposed, and the implementation is ongoing. More details with respect to proposed deadlines for various measures and activities (administrative and technical) are provided in the action plan included in the Serbian national strategy for the waste management.

**Implementation is ongoing** - Waste management law (Official Gazette of the RoS 88/10), National Strategy for waste management for the planning period 2010 – 2019, Environmental protection Law, relevant bylaws and polices, regional and local plans for waste management development, etc.

**Completed** – "Let's Clean Serbia", initiated by the Ministry of Environment and Spatial Planning (started in 2009 and terminated in 2012). Among the other activities, clean up of the rivers and streams banks and installing of the containers for the plastic waste collection, particularly in rural areas along the rivers and streams, were accomplished within the Serbia. In addition, the intensive awareness campaign was run at the national level

## Chapter 5 – Drought and water scarcity measures (by 2021)

Table V.1: Serbia TRB relevant measures

Title of proposed measure	Status of the measures estimated towards the end of 2012			
	Please indicate whether at the country level any specific action/measures has been taken related to the listed point (please specify the title of the measure according to the ongoing national development)			
	Not started	Planning ongoing	Implementation is ongoing	Completed
Establishment of common indices to define droughts and to get a better insight of water scarcity across the Tisza Basin.			included in the Serbian Water Management Strategy (2017)	
Maps with water scarce areas identified for the Tisza Basin.				
Study: Water resources balance in soil to analyse total water budget and define measures to combat droughts at the national level.			For the whole territory of Serbia, and TRB share in country is included	
Collection of more precise information on irrigation and groundwater depletion is needed on the future uses.			Yes, on going at the national level	
Changes in agricultural practices				
Reduction of leakage rates				
Improving irrigation efficiency				
Development of an agreed upon groundwater model to assess depletion				
Coordinated approach to water allocation and the application of economic incentives or tools such as water pricing				

Title of proposed measure	Status of the measures estimated towards the end of 2012			
	Please indicate whether at the country level any specific action/measures has been taken related to the listed point (please specify the title of the measure according to the ongoing national development)			
	Not started	Planning ongoing	Implementation is ongoing	Completed
Overview of the methodologies used to establish national minimum ecological flows to be prepared (to lead to agreement on comparable limits and approaches to managing low-flow situations)				
Establishment of comparable national approaches to monitor and report groundwater abstraction to ensure the better management and regulation of groundwater resources				
Any other (please specify)?				

## Chapter 6 – Climate Change measures (by 2021)

Table VI.1: Serbia TRB relevant measures

Title of proposed measure	Please provide descriptive information
Status of climate change adaptation strategies and guidelines at national level (status of the adaptation process)	Serbia is involved in development of the strategies and guidelines under the ICPDR auspices.
Provisions/ stipulations in the strategies and guidelines in connection to the water sector.	<p>Climate change adaptation programme was developed under the Initial Nation Communication of the Republic of Serbia (submitted to the UNFCCC in 2010).</p> <p>In the Second national communication, underlined vulnerability assessment and adaptation in hydrology and water resources, agriculture and forestry, based on the fact that these sectors were identified as the most vulnerable and important in the Initial National Communication.</p> <p>In line with vulnerability assessment the adaptation measures for water and other sectors are proposed (short overview is provided below this table).</p> <p>In addition, South East European climate change framework action plan for adaptation was adopted in November 14, 2008. through Joint Statement signed by the Ministries responsible for environment of the Republic of Albania, Bosnia and Herzegovina, the FYR of Macedonia, Montenegro and the Republic of Serbia. In the Republic Hydrometeorological Service of the Republic of Serbia Virtual regional climate change center for adaptation was established by the Join Statement.</p>



Any other (please specify)?	<p>UNESCO Category 2 Centre: "Water for Sustainable Development and Adaptation to Climate Change", located at the "Jaroslav Cerni" Institute for the Development of Water Resources, Belgrade, Serbia, is in a final stage of adoption.</p> <p>Institutions from Serbia participate in great number of implemented and on going projects that address Climate and Global changes (land use, socio-economic) and in some of them adaptation measures are addressed. The full list of projects is provided bellow this table.</p>
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### Additional information on the status / progress end of 2021

**Climate change measures** relevant for water sector included in the Second national communication, Table 6.8 (Submitted on the ICPDR Danubius, December 2016) are based on vulnerability assessment. The proposed measures are divided in 4 main categories:

*Risk reduction* - the more specific groups of adaptation measures that address water use measures (e.g., Application of best available techniques in irrigation and cooperation with upstream countries -bilateral commissions, ICPDR, etc. with respect to water quantity), water quality (e.g., best available techniques applied for diffuse sources of pollution that mainly originate from the agriculture), protection against the adverse effects of water (e.g., development of flood protection plans for international rivers and large river basins – Danube, Tisza, etc ), and multipurpose measures (e.g., increase in water storage capacity);

*Policy and legal framework* (e.g., water management strategy, RBMPs, other planning documents);

*Monitoring and research* (e.g., improving monitoring and other non-structural measures to combat droughts, etc); and

*Capacity building and public awareness* (e.g., improvement of coordination/ harmonized activities of institutions and organizations in charge at local, regional and national level, etc).

For all proposed adaptation measures the classes are assigned in the following way: no regrets - NR, low regrets - LR, and techno-economic analyses required – TEAR. In relation to the time required for implementing the measure, short term-ST, medium term-MT, long term-LT, and continuous long term – CLT.

List of the relevant projects (implemented and ongoing):

**CARPATCLIM** - Climate of the Carpathian Region, the regional project financed by the Joint Research Center of the European Commission – JRC;

**CCWaterS** – *Climate Change and Impacts on Water Supply* ,the transboundary project funded by European Regional Development Fund (ERDF) and IPA;

**WATCAP**- Water and Climate Adaptation Plan for the Sava River Basin funded by World Bank;

**CC-WARE** - Integrated transnational strategy for water protection and mitigating water resources vulnerability, the transboundary project funded by European Regional Development Fund (ERDF) and IPA;

*ClimWatAdapt* - Climate Adaptation–modeling water scenarios and sectoral impacts, funded by the European Commission - DG Environment;

*SEERISK* -Joint Disaster Management Risk Assessment and Preparedness in the Danube macro-region;

*OrientGate* A network for the integration of climate knowledge into policy and planning;

*PROMITHEAS-4K* -knowledge transfer and research needs for preparing mitigation/adaptation policy portfolios;

South East European Forum on Climate Change Adaptation - SEE Forum on CCA (*CCAForum*);

Assessment of climate change impacts on the water resources of Serbia (financed by the Republic of Serbia Ministry of Education, Science and Technological Development);

Climate Change Impacts on River Hydrology in Serbia – National Study in Serbian (financially supported by Water Directorate – Ministry of agriculture, forestry and water management of Serbia);

Weather extremes and climate change in Serbia financed by the Ministry of Education, Science and Technological Development;

Studying climate change and its influence on the environment: impacts, adaptation and mitigation (CLENIAM - III43007), funded by the Ministry of Education and Science of the Republic of Serbia;

etc.

## Abbreviations

TRB	Tisza River Basin
ICPDR	International Commission for the protection of the Danube River
UNFCC	The United Nations Framework Convention on Climate Change
RBMP	River Basin Management Plan

## References

The Water Law (Official Gazette of the Republic of Serbia, nos. 30/10 and 93/12);

The Water Management Strategy of the territory of the Republic of Serbia (Official Gazette of the Republic of Serbia no. 3/2017);

Memorandum of Understanding - Towards a River Basin Management Plan for the Tisza river supporting sustainable development of the region (2004);  
url: <http://www.icpdr.org/main/resources/2004-tisza-memorandum-understanding>;

UNFCC ratified in 2001;

The Kyoto Protocol ratified in 2007;

South East European Climate Change Framework Action Plan for Adaptation- SEE/CCFAP-A (2008);

Act of ratification of Danube River Protection Convention („Official Gazette SRJ“ – International contracts , no. 2/2003);

The Second National Communication of the Republic of Serbia under the UNFCCC (Submitted on the ICPDR Danubius, December 2016).

Project co-funded by the European Union (ERDF, IPA funds)

Partners: General Directorate of Water Management, Hungary | Global Water Partnership Central and Eastern Europe, Slovakia | International Commission for the Protection of the Danube River | Ministry of Water and Forests, Romania | Ministry of Foreign Affairs and Trade, Hungary | National Administration "Romanian Waters", Romania | National Institute of Hydrology and Water Management, Romania | Public Water Management Company "Vode Vojvodine", Serbia | Regional Environmental Center for Central and Eastern Europe, Hungary | The Jaroslav Černi Institute for the Development of Water Resources, Serbia | Water Research Institute, Slovakia | World Wide Fund for Nature Hungary

Associated Partners: Interior Ministry, Hungary | Republic of Serbia Ministry of Agriculture and Environmental Protection – Water Directorate | Secretariat of the Carpathian Convention (SCC), Austria | State Agency of Water Resources of Ukraine | Tisza River Basin Water Resources Directorate, Ukraine