REPORT

FLOOD-WISE
CROSS BORDER RIVER BASIN MANAGEMENT

Sub-report:
Inventory Flood Risk Management Plans of the river Somes in Hungary and Romania

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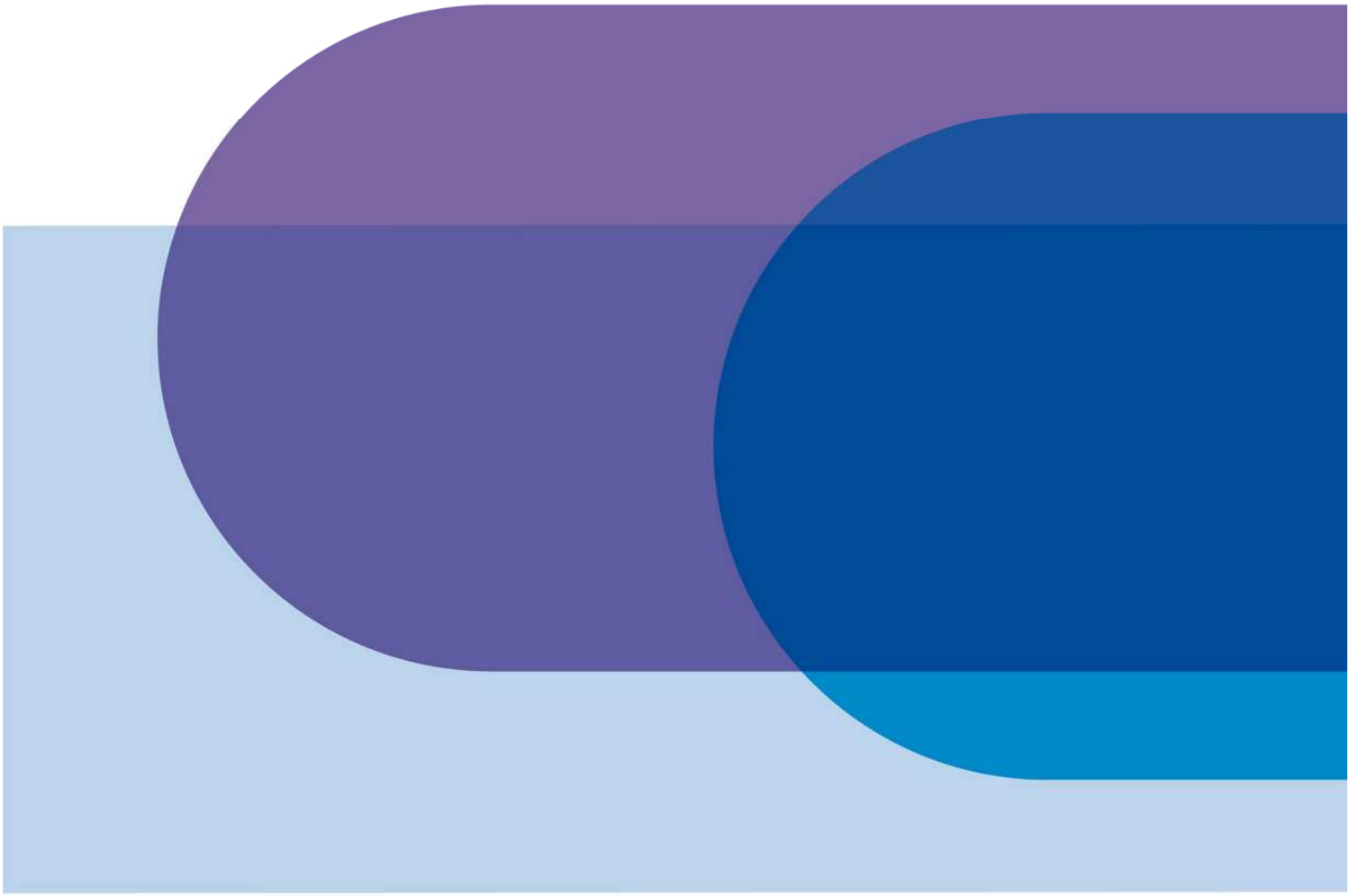

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1 Introduction

This sub-report is an inventory about the existing information of flood risk management plans in the river basin of the Szamos/Somes.

1.1 Work plan for the basin of the river Szamos/Somes

Issues

- Inventory of flood risk management plans on both sides of the border (Hungary and Romania)
- Discussion on experience with flood risk management plans
- Recommendations for (joint) flood risk management plans on both sides of the border

Inventory of existing practices

- Bilateral relation in water management field between Romania and Hungary (developed in 2003)

Activities

- Discussion on preliminary working plan phase 3 (March 2012);
- Inventory studies on existing flood risk management plans and national regulations;
- Collection data and information exchange;
- Discussion on experience with flood risk planning and cross-border cooperation ;

1.2 Members of the river basin pilot team Rur / Roer

Hungary:

Gáspár Bodnár – director
Sándor Kató – project manager, flood protection expert
Antal Pesel – financial expert
István Galyas – flood protection expert
Károly Gencsi – financial expert
Zoltán Lucza – hydrologic expert
János Gulyás – flood protection expert
Antal Luidort – contact person, flood protection expert
Zoltán Dávid – flood protection expert
Ferenc Hoszták – flood protection expert
Tamás Fülöp – river basin coordinator, flood protection expert

Romania:

Flaviu Radu – director
Ioan Rosu – technical director, project manager
Bogdan Neciu – head of Implementation of Projects and Programs Department
Ildiko Chis – Finanacial Accounting Department
Silviu Ispas – Dispatch and Flood Protection Department
Florin Stoica – head of Hydrology, Hydrogeology and Hydrological Forecasts Department
Radu Farcas – Cross-Border Relations Department
Simona Balan - Implementation of Projects and Programs Department

2 Existing information at each side of the border

2.1 Hungary

In Hungary the Flood Risk Management Plans (FRMP) for the river Szamos (and for the all watercourses in Hungary) is relates to the Government of Hungary. In this period the Upper-Tisza-regional Water Directorate together with technical consulting companies elaborate flooding maps according to the European Union Directive for different degrees of assurance on the main watercourses in their river basins, including Szamos river basin.
The Water Management Directorates will have the opportunity to work in the FRMP too. They have to fulfil a public procurement process before they can start the work.

The “Concept of River Basin – Water Damage Prevention Development Plan” is a summary of the measures to achieve the objectives of arrangements supported by the best practices and best technologies that have determined by the results of cost-benefit analysis.
It is important to take account the instructions of Flood Directive (FD) in the FRMP which have to contain an integrated river basin approach by taking into account the following:

- River Basin Management Plans,
- Regional Development Plans
- Feasibility study on a number of variations
- On Cross-border river basins or sub-basins we have to examine the effects and opportunities of trans-national actions/measures
- The analysis and harmonization of special methodologies concerned by Member States

The goal is to reduce the risk with the help of the risk management plans. The main types of measures can be summarized as follows:

- To reduce the potential damage
- To reduce the load to a sustainable level
- To improve the resistance of dikes and to improve the flood protection

In compliance with the FD during the preparation of the “Concept of River Basin – Water Damage Prevention Development Plan” we have to examine the feasibility of all major types of risk reduction following the next steps:

- reduce the potential damage in the designated area by the results of the flood hazard maps,
    - especially for land-use,
    - for Regional development plans
- to reduce the flood levels and to reduce the durability of floods to a sustainable level which is accessible with intervention measures in the river basin
    - The planned watershed interventions necessary to examine in sub-basins within the River Basin Management Plan (RBMP) like runoff derogation or flood wave storage in reservoirs.
        - Soil and forest management, runoff derogation
        - Flood wave storage in reservoirs
    - In the flooded areas we can reduce the effects(or the load) to a sustainable level of the floods with the help of flood hazard maps with
        - improved discharge capacity of floods (Flood Management Plan),
        - flood gates, or to build spillway channels,
        - reservoirs which will be flooded at time of flood

We should compare the results of the specific measures and interventions with the expected results of the flood risk management objectives. If the effects can only be characterized by a more detailed analysis it needs to be create some detailed flood risk maps and analyze it.
The planning process will continue if the planned intervention measures can not provide an acceptable degree of risk for the society.

Several versions of the “Concept of River Basin – Water Damage Prevention Development Plan” (feasibility study) have to analyze and the results of the cost-benefit analysis will determine the “Basin – Water Damage Prevention Development Plan” which includes the non-structural measures and the construction right permit required interventions.

2.2 Romania

The Plan for the Prevention, Protection and Minimizing of the Flood Effects inside the Somes – Tisa Hydrographical Area is made according to the Romanian Government’s Decision no. 1309 / 27.10.2005 regarding the approval of the program for the implementation of the National Plan for the Prevention, Protection and Minimization of the Flood Effects and for the financing of this plan, starting

from 23 October 2007, according to the provisions of the European Union's Flood Directive, for the assessment and management of the flood risk.

The National Plan for the Prevention, Protection and Minimization of the Flood Effects will be applied on the Somes, Crasna and Tisa river basins.

The main objectives followed by the project are:

- identification of the river basins or river sub-basins with flood risks;
- regionalization of the flood hazard;
- presentation of the main flash floods occurred during the last 30 years, which induced floods;
- description of the flood vulnerability inside the flood risk areas;

use of the charting equipment for the making of the flood risk assessment;

- causes of the floods, with the description of the anthropic factors contributing to the urging of the flood phenomenon;

- Assessment of the influences / modifications over the hazard regionalization of the flash floods and assessment of the vulnerability;

- estimation of the tendencies regarding the future floods occurrence

- assessment of the consequences of eventual flood over the population, properties and environment;

- the establishment of the protection degree, accepted for the human settlements, for the economic and social objectives, for the farm areas, etc.;

preliminary assessment of the flood risk (for discharges higher than the calculus discharge);

- presentation of the necessary measures and actions for the reduction of the flood risk, the financial assessment for that and the identification of the necessary projects;

- cost analysis for the potential structural and non-structural measures, in an alternative manner, by using the 2D flood map analysis;

- analysis of the flood risk, for the evacuations and for the contingency plan (number of evacuated people, size of the forces assigned for the evacuation activities, logistics and technique available for the authorities);

In order to make the plan, first of all, we needed a detail analysis of the main floods occurred inside the Somes – Tisa hydrographical area during, at last, the last 30 years, in order to identify the area exposed to such phenomenon.

After this analysis, we established the main stages of the eventual project, inside the priority areas.

As a consequence, the hydrological and the topographical studies are the foundation on which the entire project would be built. The quality of these studies will define the superior results output.

The hydrological studies will provide the characteristic parameters for the floods occurred in 1975 and 2005and for the calculus discharges with overflow probabilities of 0,1%; 1% and 5%.
The hydrologic and hydraulic models will be made by using the hydro-meteorological data base and the topographical measurements on site; them calibration will be done according to the records of the historical floods.

The studies on the hydrologic and hydraulic models will be necessary for the establishment of the carrying capacity of the riverbeds, for the delimitation of the flood plains and for the detection of the transit discharges at the hydro-technical installations, but also for the establishment of the parameters needed for the structural measures' projects. These will be based on the 1D and 2D unstable hydro-dynamic models. Therefore, the users would be able to assess the proposed measures and the impact over the river's system; of course with the potential combination of the 1D and 2D.

Topographical studies, will encompass situation plans, cross-section profiles, longitudinal profiles, topographical studies, altimetry control points and the digital model of the terrain (DTM) with an altitudinal accuracy of 15 cm in the priority areas and 20 cm in the rest of the river basin.

The DTM will be integrated with the plans and the DTM vector maps or similar items, at the existing scale for the urban (inhabited) areas. We will use the most detailed available scale, and for the river basin we will use the informational plans made according with the 1:50.000 and 1:25.000

maps, where these maps are available. DTM will be presented on paper (on a convenient scale) and on digital format.

In order to have an efficient instrument for information and also a valuable base for the prioritization, for the eventual *technical, financial and political* decision-making regarding the flood risk management, for the drafting of the flood risk maps, able to show the potential negative consequences associated with floods, including information regarding the potential polluting sources in case of flood occurrence.

The plans for flood risk management should focus on the prevention, protection and preparation. These plans should rely on the concept “more room for the rivers” and to consider, if possible, the maintenance and / or the restoring of the flood plains, buy also measures for the prevention and minimization of the negative effects induced on the human health, on the environment, on the cultural patrimony an on the economic activity.

2.3 Cross-border committees

The bilateral relation in water management field between Romania and Hungary is conducted based on the Agreement between the Government of the Hungary and the Government of Romania on cooperation in the field of protection and sustainable use of transboundary waters, signed at Budapest, 15 September 2003 and ratified by GD no. 577/2004. On the basis of the Agreement there works a Romanian-Hungarian Hydrotechnic Commission, conducted by the plenipotentiaries of the Governments. Within this Commission, there are the following Sub-commissions:

- Sub-commission of water management and hydrometeorology;
- Sub-commission of flood protection;
- Sub-commision of water quality;
- Ad-Hoc Sub-commission

Regarding the first two Sub-commissions, they are responsible for applying the following Regulations currently running:

- Regulation on the mutual transmission of meteorological and hydrological data and information between Romania and Hungary;
- Regulation on carrying out systematic hydrometric observations and determination of sharing water resources on border waters;
- Regulation on collaboration between hydrotechnic bodies in the field of low levels waters;
- Regulation on the procedure applicable to projects likely to cause transboundary impact;
- Regulation on protection against flooding on rivers;
- Regulation on protection against flooding on internal rivers;

This is necessary for a good cooperation between Hungary and Romania, for supervision and safety of hydrotechnical construction, floods protection and accidental pollutions. At time of flood hydrological warnings will be mutually transmitted on all water levels registred between the hours of transmission, and the maximum level rate of water with mentioning the date and the quantity of precipitation from the range. Every autumn there is a bilateral meeting of experts in the two countries, where they discuss issues specific to the activity. In this meeting we know better our's flood protection works, commonly we examine the state of the works and we fund the common developments for the near future.

2.4 Comparison of approach across the border

In Hungary and Romania some general concepts for the generation of flood risk management plans exist and the main organisational and coordinative responsibilities are regulated.

In the first phase, both Romanian and Hungarian partners will draw maps of flooding in the border area, will then compare the final results, attempting to harmonize them in the border area.

3 Obstacles and benefits (good practices)

3.1 Obstacles to be overcome for harmonization of flood risk plans in the border region.

Threats and challenges related to flood risk planning

- How detailed does the plan have to be set up?
- Does the plan have to have the same level of details across the border?
- FRM can be published to inform the managing authorities, stakeholders (for example the insurance companies) and public. Will it be useful for everybody?
- How does the developed FRMP will be implement?

Plan is developed throughout the Somes-Tisa catchment area, that is 22,380 square kilometers, of which 1452 square kilometers are part of the priority area (priority 1), which means a sensitive area, with high risk of floods. On this surface, the detail level of the calculations, namely the representation on maps and plans will be more detailed (depending on the situation, not imposed a particular scale).

The border area corresponding to Somes, Tur, Crasna and Tisa rivers are part of this priority area because of its transboundary impact.

After completion, the hazard maps will probably be made available (not officially decided yet) to Local Administrations, which have, according to law, the responsibility to prepare the risk maps.

Considering the results obtained in this program, there will be developed new guidelines schemes of planning the hydrographic basins, including the possible implementation of a modern social development policy and insurance policies.

3.2 Expected benefits of (joint) cross border cooperation for flood risk planning

Objective and expected benefits of flood risk planning for the cross-border region

- Find the best solution on catchment level / without borders
- Improvement efficiently of early warning system;
- Inform people about flood risks and measurement plans;
- Assess effects of measures cross border
- Diminish flood risks
- Improvement of the cross border information exchange and using common information platform (morphology, hydrology and hydraulics) for flood forecast;
- Decreasing of negative effects downstream;

4 Conclusions

4.1 Potential ways to harmonise flood risk planning methods across the border with respect to the requirements of the EU Flood Risk Management Directive

Firstly, it is necessary to harmonize the characteristic legislation of the two countries, followed by the development of joint working procedures for flood risk management.

4.2 Suggestions for themes to be discussed during the next partner meeting: demands (remaining questions) and offers (good practice)

See Chapter 3.1