FLOOD RISK MAPPING
INVENTORY SUB-REPORT

Made by:

National Administration 'Apele Romane' Romania – Somes Tisa River Basin Water Administration
Cluj Napoca

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Nyíregyháza

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FLOOD-WISE
INTERREG IVC
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1. Introduction

1.1. Work plan for Somes/Szamos river basin (activities)

- Both partners will make their own team in November and then they will form a joint team in management and communication. The two partners meet by the end of February 2011 in order to discuss objectives, threats and priorities and the top 5 of joint priorities regarding flood risk mapping (Objective of the discussion is to identify obstacles, knowledge gaps and good practices concerning flood risk maps and cross-border cooperation).

- The teams will analyze which institutions, authorities, connections or organizations should be involved in action associated with the project implementation and which companies, associations or stakeholders should be involved in our river basin team.

- The teams will meet again in March, in April and in August to harmonize their results and discuss the most important works for the flood risk mapping phase.

- In August we will make a draft-inventory report about the results of the regional river basin meetings and the identified obstacles and knowledge gaps and good practices too.

- In September we will complete the reports and send it to the SSC.

1.2. Members of the river basin (pilot) team

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 border*

	Hungary		Romania	
	Flood hazard maps	**Flood risk maps**	**Flood hazard maps**	**Flood risk maps**
Content	Flood extent (probabilities)	Risk assets	1.Data on historical floods, areas flooded 2. Flood extent (probabilities) work in progress	Damage recorded in historical floods Preliminary assessment of risk
	Water depth	Vulnerabilities	Discharge and Wather depth	Vulnerabilities
	Water speed	Probable losses (effects)	Water speed	Probable losses (effects)
	Water spreading	Probable losses (for a time unit)	Water spreading	Probable losses (for a time unit)
Application	Land using and land development	Policies	Land using and land development	Policies
	River basin management planning	Design of non structural measures	River basin management planning	Design of non structural measures
	Local emergency responses	Flood risk management planning	Local emergency responses	Flood risk management planning
	Design of structural measures	Priorization of the actions	Design of structural measures	Priorization of the actions
	Risk-conscious way of thinking	Risk-conscious way of thinking	Education, the concept of acceptable risk	Education, the concept of acceptable risk

Scale	Local level From 1 : 25 000 to 1 : 5 000	Local level From 1 : 25 000 to 1 : 5 000	1 : 25 000 to 1 : 5 000	
	National level, river basin From 1 : 50 000 to 1 : 1 000 000	National level, river basin From 1 : 50 000 to 1 : 1 000 000	National level, river basin From 1 : 25 000 to 1 : 1 000 000	
Users	Flood protection experts	National, regional and local water management experts	Flood protection experts	
	Farmers, agricultural entrepreneurs	National, regional and local land development experts	National, regional and local water management experts	
	National, regional and local land development experts	Disaster management	National, regional and local land development experts	
	Disaster management	Insurance companies	Inspectorates for Emergency Situations	
	General public	General public	Local administrations	
			Farmers, agricultural entrepreneurs	
			General public	

3. Significance of flood hazard and risk maps for the region

3.1. Identification of areas for which a potential significant flood risk exists

The interests are common. At the Hungarian side the full length of the Szamos/Somes river is protected by dikes. These dikes were designed for the 100 year flood wave levels plus 1.0 m safety. Over this water level almost the entire Hungarian Szamos/Somes river basin will be inundated. The most potential areas are next to the river bed.

We can make new development plans based on the defined flood protection maps and flood risk and hazard maps. We have to review the existing ramparts to get an overview where we need to improve them and which areas need intervention in order to prevent a disaster. This includes land use, environmental, economic and housing aspects too.

At the Romanian side the Somes river is protected by dikes on severals sites (Cluj county 7 km, Salaj county 6 km, and from the last 70 km from Maramures county limit to the Hungarian border, the both sides). These dikes were designed for the 100 year flood wave levels plus 1.0 m safety.(inssurance 0.1%) Over this water level almost the entire Romanian Somes river basin will be inundated. The most potential areas are next to the river area.

3.2. Identification of areas with potential significant flood risk with cross border significance

The Szamos/Somes river is a cross border river. Romania is the upstream part of the river, Hungary is the downstream part. That is why if a flood occur a dike breach in Romania the inundated water flows down to Hungary. After the main flood in Szamos/Somes river in 1970 the Hungarian Government built a localization dike system ("closing" or "final" dikes) which is almost parallel with the border from the right bank of the Szamos/Somes river to the left bank of the Túr river. Together with this system and with the drainage channel system of internal waters (Somes river side) decreased the value of the damage produced before 1970, both on the Romanian and the Hungarian territory.
With this dike system we can limit the inundated areas in the border and we can drain away the water in the Hungarian canal system with the flood gate structures. As a result the highest flood potential areas are located on the right side of the Szamos/Somes river near the border.
Accordingly to the European Union Directive the flood risk management plan is being developed/elaborated. At the present stage on the Hungarian side we develop the flood hazard and flood risk maps and on Romanian territory the flood hazard maps.

4. Comparison across the border

4.1. Similarities and differences in approaching flood risk mapping in the countries involved

- Clearly defined responsibilities, together adopted with the regulations by water damage and specified water levels
- Regular common transboundary inspections and flow measurements
- Mutual assistance (in flood protection, water quality protection)
- Common, digital management plans for flood protection and inland water protection (longitudinal- and cross sections)

4.2. Obstacles to be overcome for harmonization of flood risk maps or joint flood risk mapping in the cross border region.

- Currently we haven't got a flood risk map for the Somes/Szamos river basin. For a common and harmonized flood risk map we will need the following data's:
  - Topographic maps
  - Digital terrain model (DTM)
  - Soil maps
  - Land using data's
  - Orthophoto (air photos)
  - Administrative boundaries
  - Population
  - Individual risk assessment
  - Common coordinate system
  - Same scenarios
- Now we have only a little good quality and old data which we could use.

4.3. Expected benefits of (joint) cross border cooperation for flood risk maps

- Fast and accurate flood forecasts using the results of the models
- Well defined areas for the point of view of risks
- Development of new directions and definition of new flood protection strategy
- In order to effective protection, creating new correct intervention plans
- Faster information flow between the two Directorates

5. Conclusions

5.1. Potential ways to harmonize flood risk mapping methods across the border with respect to the requirements of the EU Flood Risk Management Directive

Within the flood protection and inland water protection subcommittee we should form a workgroup, which is harmonizing with our Partner the established and used flood risk management methodology in Hungary. With this the methods of flood risk could be easily coordinated.

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

Demands:

- The process of creating flood risk maps in other river basins
- The details of the different flood risk maps, the way to harmonize them on border area between Romania and Hungary
- The process of creating a common flood risk management plan
- Introduction of the different methodic regarding to the creation of flood risk and hazard mapping and to the flood risk management plans
- Flood control and protection process, structure and responsibilities
- The practice of bilateral cooperation (in “peacetime” and at time of flood)

Offers:

- The practice of Hungarian – Romanian cooperation (in “peacetime” and at time of flood)
- The presentation of Our Forecasting Center
- Modern localization plan for the Bereg (by a 2D inundation model)
- The process of creating a common flood hazard and risk map for the Szamos/Somes river cross border section