



## FLOOD PREVENTION IN HUNGARY

# PREVENTION AND CONTROL OF FLOODS ALONG THE TISZA



Switzerland is funding two projects in Hungary which will ensure that the river Tisza does not burst its banks so frequently or, when it does, it will not have such severe consequences. The first project comprises collecting data to help create and update emergency action plans for floods. The second project aims to set up an information and communication system to mitigate the negative impact of floods.

The two projects will be carried out in the upper reaches of the Tisza, which flows from the Ukraine into Hungary and is the country's second largest river after the Danube. As a result of climate change and human intervention such as forest clearances, the conditions along the river have dramatically deteriorated in recent years. In particular, ever more frequent flooding is causing more and more damage. In view of these alarming developments, Hungary is taking steps to mitigate this situation. Switzerland is supporting these efforts with the two projects.

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### PROJECT 1: UPDATING FLOOD DEFENCE PLANS FOR THE UPPER REACHES OF THE TISZA

The project on the banks of the Tisza between Rakamaz and Tiszavalk consists of collecting data on the topography and vegetation along the banks of the river from aerial photographs, then using this data to update emergency flood defence plans. This is vital because upstream in Ukraine, the banks of the river have been paved over or built on without providing any suitable overflow reservoirs. This increases the likelihood of the river breaching its banks in Hungary following heavy rainfall. The project enables rapid action to be taken at critical points in the river in crisis situations, for example the reinforcement of dams. The project covers approximately 120 km of the river.

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### PROJECT 2: FLOOD INFORMATION SYSTEM FOR THE UPPER REACHES OF THE TISZA

The second project complements the first, but covers a different section of the upper reaches of the Tisza. The aim is to develop a reliable forecasting model for floods which will enable suitable action to be taken to mitigate the negative impact of floods. In addition, a network for hydrological measurements (water level, temperature, precipitation etc.) will be completed, and a modern digital radio-communication system will be provided which in crisis situations will enable the relevant decision-makers to be notified quickly about the details of the situation on the ground.

A Swiss expert from the Federal Institute of Technology (ETH) in Zurich is helping to plan and implement the project, in particular to create the complex forecasting model.

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## OTHER FLOOD PREVENTION PROJECTS IN HUNGARY

Switzerland is financing other projects to protect the population from floods in the catchment area of the river Tisza. These include a pilot project with mobile dams, the renovation of reservoirs, the restoration of streams damaged by flooding, and the upgrading of rainwater drainage systems.



*Flood protection is a very complex activity. Fast information flow and rapid and correct decision-making are essential in order to minimise damage. For me, this project is important because the resulting state-of-the-art flood prevention plans using highly advanced distance measuring GIS technologies can significantly contribute towards the successful protection against damage resulting from flooding on the Tisza river.*

Attila Sándor, Contact person, Water Management Directorate of the Tiszántúl region



*The main objectives of this project are to analyse flood runoff, methodologically study the development of flood curves and perform calculations in order to determine flood probability levels, improve the flood prevention information system and acquire the necessary infrastructure for flood prevention.*

*These tasks have been delegated to us by the Hungarian and Ukrainian government officials responsible for the rivers on the borders, since for both countries it is equally important that flood prevention functions effectively and thus the people living in the areas concerned can feel safe. Another important task is to take into account the impacts of global climate change and deforestation when the hydrological forecast system is prepared.*

*As a resident of the Upper-Tisza region, it is of great importance to me that the new technology can improve the degree of flood protection for the approximately 180,000 people living in 116 settlements below the flood level, as well as increase the protection of personal and national property.*

Zoltán Lucza  
Head of Water Management Department  
Upper-Tisza Regional Environmental  
and Water Directorate

### THE PROJECT IN BRIEF

#### SUBJECT

Natural disaster management

#### COUNTRY

Hungary

#### PARTNERS

Swiss experts are involved in project preparation and implementation

#### STARTING POINT / BACKGROUND INFORMATION

The Tisza is one of several rivers running through Hungary which originate in other countries. Hungary is the European country most frequently affected by floods. Prevention of damage is therefore of national importance for Hungary. The country is taking steps to mitigate the damage caused by such natural catastrophes.

#### PURPOSE

These two projects aim to prevent damage being caused by repeated floods along the Tisza wherever possible.

#### ACTIVITIES

- Collecting data on the topography and biomass of the region
- Developing forecasting models
- Drawing up action plans for responding to natural catastrophes
- Developing a reliable flood forecasting model
- Setting up a digital radiocommunications system

#### TARGET GROUPS

- Population in the project region along the Tisza, i.e. around 330,000 people.
- Decision-makers and technical staff at the institutions responsible for water management in the region.

#### COSTS

Total project budget of the two projects:

CHF 807,000

Swiss contribution to the two projects:

CHF 686,000

#### RESPONSIBILITY FOR PROJECT IMPLEMENTATION

Upper Tisza Regional Environmental and Water Directorate

#### DURATION

2011 – 2012