

# **Transboundary River Basin Management of the Körös/Crisuri River Project, Hungary - Romania**

Pilot project supporting the strategy  
of the Danubian countries for integrated water management

# PROJECT BACKGROUND INFORMATION

<b><u>PROJECT TITLE</u></b>	<b>: <i>Transboundary River Basin Management of the Körös/Crisuri River, Assistance with tools set-up for the control and management of the Körös/Crisuri Basin</i></b>
<b><u>PARTNER INSTITUTION</u></b>	<b>: <i>Ministry of Ecology and Sustainable spatial planning / FRANCE Ministry of Environment and Water / HUNGARY Ministry of Environment and Water Management / ROMANIA</i></b>
<b><u>PROJECT AMOUNT</u></b>	<b>: 1,024,000 Euro</b>
<b><u>BENEFICIARY</u></b>	<b>: <i>International Commission for the Protection of the Danube River</i></b>
<b><u>PRIME CONTRACTOR</u></b>	<b>: <i>International Office for Water</i></b>
<b><u>PROJECT STARTING DATE</u></b>	<b>: <i>June 2005</i></b>
<b><u>IMPLEMENTATION DURATION</u></b>	<b>: <i>2 years</i></b>

The map illustrates the Danube River basin, highlighting various management and coordination levels. Key features include:

- International management:** Indicated by a red oval encompassing the entire basin.
- Basin coordination:** Indicated by a red oval encompassing the entire basin.
- ICPDR Danube coordination:** Indicated by a grey box labeled "ICPDR Danube coordination" over the upper part of the river.
- Hungary:** A blue box labeled "Hungary" is positioned over the central part of the river.
- Romania:** A blue box labeled "Romania" is positioned over the lower part of the river.
- 2 National WFD implementation strategy:** A white box labeled "2 National WFD implementation strategy" is positioned over the lower part of the river.
- Tisza:** A grey box labeled "Tisza" is positioned over the Tisza River.
- Körös/Crisul Alb:** A blue box labeled "Körös/Crisul Alb" is positioned over the Körös/Crisul Alb River.

The map also shows the Danube River flowing through Germany, Austria, Slovakia, Hungary, Romania, Bulgaria, and Ukraine. Major cities like Vienna, Budapest, and Bucharest are marked. The Adriatic Sea and Black Sea are also labeled.

## Basin coordination

# Tisza

## Romania

## 2 National WFD implementation strategy

# Project objectives

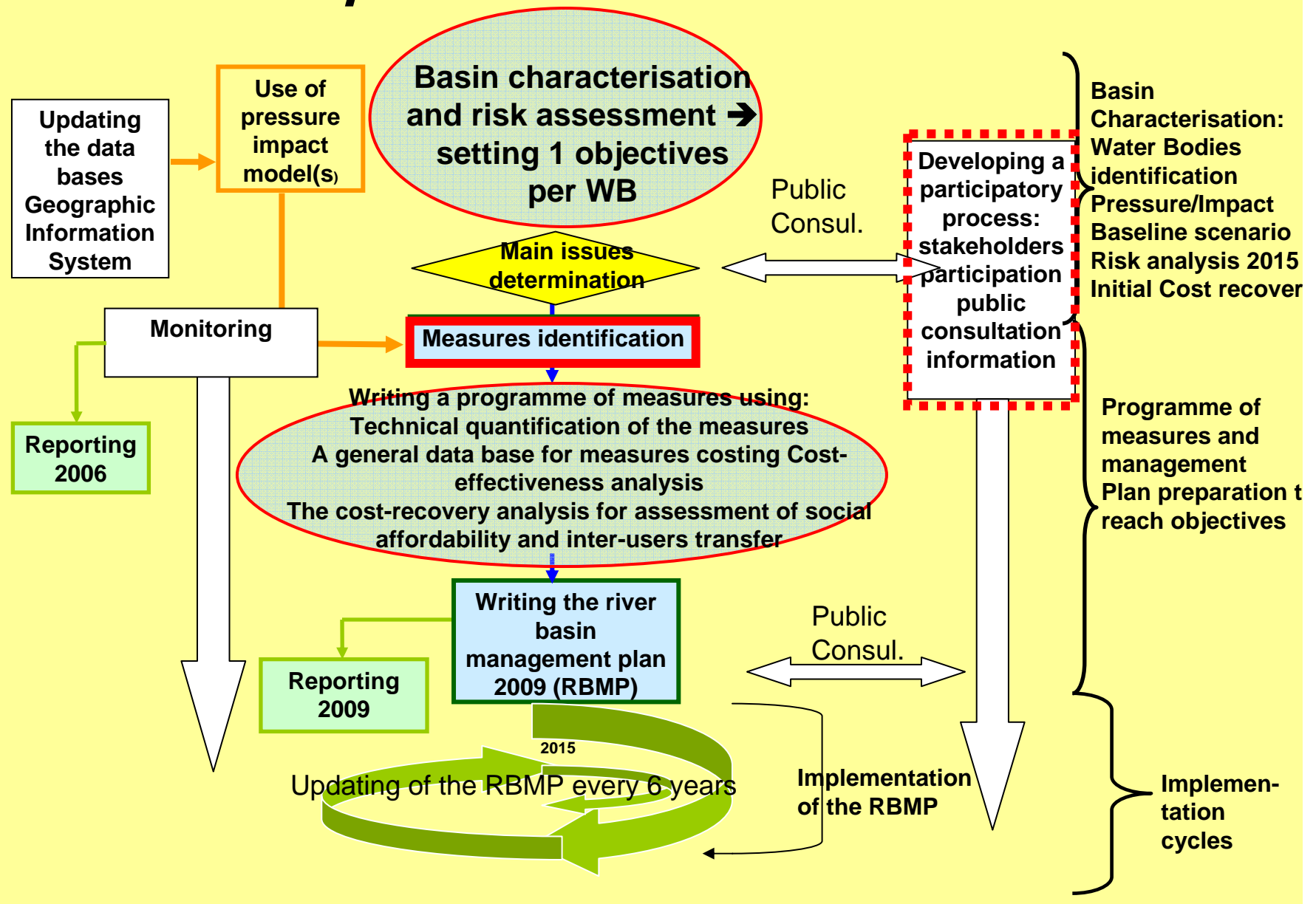
Strengthen the cooperation between Hungarian and Romanian organisations responsible for environment and water management, including public participation for the development of

- **River Basin Management Plan (RBMP)** in line with WFD requirements
- **Watershed Contingency Plan (WCP)** to improve response to future accidental water pollution.

## Other important results:

- team work between the practitioners working on water issues in the two countries
- transfer of new methodologies and practices to the regional and national teams responsible for the generalisation of the work in their entire countries.
- disseminated in all of the Danube basin countries through ICPDR.

# *WFD implementation road map proposed for optimised coordination*



# Activities to support Public Participation

**Bringing support to structure stakeholders involvement in RBM Planning**

**Training on public debate techniques**

**Public consultation pilot test (in a small part of the River Basin) on main water issues using Romanian – Hungarian commonly drafted questionnaire :**

- testing public knowledge level**
- public expectation regarding main water problems to be solved**
- identify local water issues**
- identify actions that peoples consider as important to protect waters**

## Conclusions and “lesson learned” from PP activity

- **The presentation of the main issues in the basin** as summary of the basin characterization and main line of the programme of measure **is very useful**. In this view, the recommendation was to organize meetings at the basin level with all the stakeholders involved, in order to identify the issues and to select the most important for the users.
- 65 invited – 9 persons present + 3 representatives of the mass-media (try to answer to the question: **Why they didn't participate?**/we have in view to mobilize people in order to apply the door-to-door technique to distribute the questionnaires and to explain the need and benefits of the participation process – maybe using NGOs, water companies etc?).
- **Representatives of the elected authorities** (county council) **not very interested** (try to answer to the question: Why they didn't participate?/we need to awareness on their key role in the planning process and to encourage them to rise participate in decision-making process). Need to mobilize them early on the objectives + bring elaborated information on obligation and future investment needs.
- **People and local authorities need to be better informed and involved** (continuous education/explaining the benefits of the public involvement in this issues/asking to the question: Why should I be involved?).
- Need to control the process with the use of trained information relay.
- **Public consultation is a very expensive procedure** (we stress the need to increase public funding and to have sponsors from the industrial sector; they should be convinced in this regard by involving them in the decision-making process – by raising the number of the participants in the basin committees meetings).
- Elaboration of a brochure to be disseminated at national level





# Transboundary River Basin Management of the Körös/Crisuri River Project

Sharing knowledge for better water management

2005 - 2007

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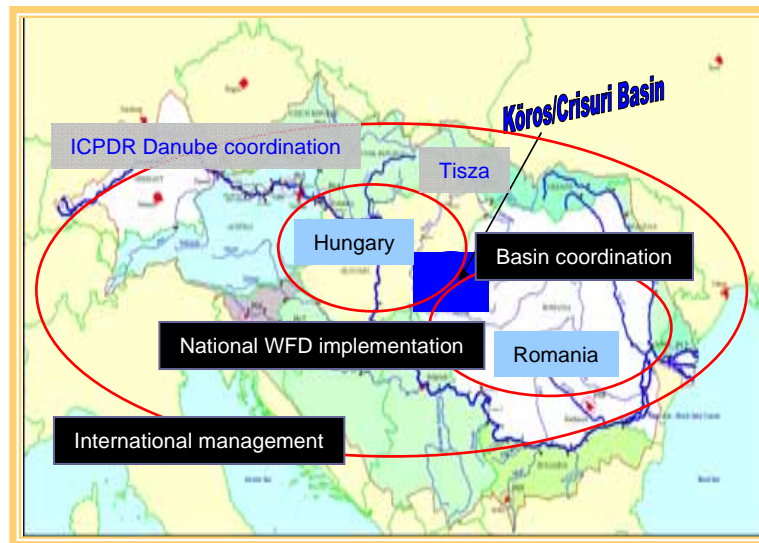


# Project context

## The challenge of transboundary water management

The Danube basin is the most international in the world (it is shared by 19 countries), the biggest area belonging to Hungary and Romania (40% of the surface area).

Water quality in the Danube basin is greatly affected by the activities of over 81 million people.



*Danube River Basin District and Water Management Sub-units:  
A unique need for coordination*

The Water Framework Directive: a common framework for integrated water management applied to the Danube Basin

Adopted in 2000, the Water Framework Directive (WFD) requires a number of obligations to be fulfilled with the aim of reaching “good status” for European water resources within fixed deadlines. To reach its objectives, it relies on the development of integrated water management plans at the scale of river basins.

The International Commission for the Protection of the Danube Basin (ICPDR) has set up a cooperative strategy fully in line with the WFD requirements.

## Pilot project on the Körös/Crisuri Basin

In this context, Romania and Hungary decided to develop pilot integrated water management tools on the Körös/Crisuri Transboundary River Basin, a Tisza/Tisa sub-basin. A project was prepared with the support of the French ministry of Ecology and Sustainable Development, FFEM and IOWater. The project, which effectively started in 2005, brought together Hungarian, Romanian and French experts who deal with WFD implementation in their countries.

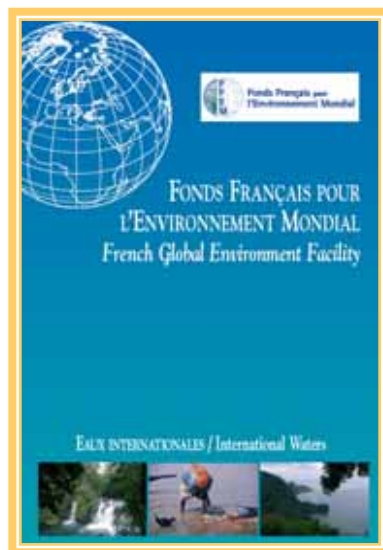
This cooperation, which relied on exchanges of methodologies and practical experience, has led to numerous improvements in the cooperation of the partner countries for shared work management and effective Water Framework Directive implementation.



# The French Global Environment Facility (FGEF)

The French Global Environment Fund (FGEF) was created in 1994 by the French government to support environmental protection in developing countries and countries in transition.

The FGEF comes under its 5 French institutional members: the Ministries responsible for Economy, Foreign Affairs, Ecology and Research as well as the French Development Agency (AFD), which is also responsible for administrating the FGEF.



*The aim of the French GEF is to contribute to better management of international waters.*

The goal of the FGEF is to promote global environment in economic and social development projects. It subsidises projects in the following areas to help fight the main threats to global equilibrium: biodiversity, climate change, international waters, desertification and land degradation, persistent organic pollutants and the stratospheric ozone layer.

In the field of international waters, based on the long-term French experience of water management at river scale, the FGEF supports transboundary river basin management process worldwide. Its flagship in Eastern Europe is the Körös/Crisuri project, which was proposed for FGEF support in 2003 by the French Ministry for Ecology.



# The International Office for Water

## AQUACOPE

### Disseminating know-how

In France, the International Office for Water manages the National Center for Water-related Information and Documentation.

This includes:

- The AQUACOPE International documentation base with more than 300,000 references.
- The National Water Data Base (BNDS), which defines the data dictionary, protocols, coding, reference systems and standards, and ensures the necessary information necessary for informing the authorities.
- The Permanent Inventory of Water Studies and Research.
- The website: <http://www.iowater.org>

Thanks to the French experience, IOWater is in charge of:

- The "AQUACOPE-INTERS" network, which gathers the National Water Information Centers of its member countries of the International Network of Basin Organizations.
- The Euro-Mediterranean System on Know-how in the Water Sector (SEMS).

It also proposes to cooperate with the interested countries for the creation of their own documentation and information centers (design of documentation management systems, guidelines for scientific and technical processing equipment and means, supply and exchange of documents) and for the professional training of their documentation staff.

## International Institute for Water Administration

### Facilitating institutional reforms

The International Office for Water is specialized in advising and training on legislative, regulatory, institutional, financial or social fields necessary for preparing and implementing suitable reforms to improve local water management.

IOWater proposes interested countries and institutions to work with them for improving their own capacities for administrative organization and developing their capacities to enable them:

- formulate regional, national or local strategies for water resource management;
- organize and manage specialized administrations and institutions;
- prepare legal and regulatory texts;
- undertake economic simulations, planning and study of masterplans;
- set up partnerships (river basin committees, user associations...);
- set up public/private partnerships and the delegated management of water utilities.

IOWater works to promote priorities:

- integrated management of water resources of national or sub-national river basins, lakes and aquifers;
- drinking water supply and sanitation;
- the protection and control of industrial pollution;
- the design and management of water infrastructure.

### A network of partners

The International Office for Water is a non-profit-making Association under the French Law of July 1, 1901, since approved by Decree on September 13, 1991.

IOWater's objective is to gather public and private partners involved in water resource management and protection in France, Europe and the rest of the world. It has established cooperation agreements, missions, new local agencies, local authorities, universities, engineering schools, research centers, land development companies, water utilities and professionals, international, professional associations, and government organizations, ...

It aims to set up a network of partners willing to have permanent relations for mutual cooperation and to develop all aspects of the expertise that they can provide in their complementary fields.

IOWater now comprises 140 member organizations. It employs a permanent staff of 110 people in its Department based in Paris, Limoges-La Couronne and Sophia-Antipolis in France and can establish a network of 200 international experts, within ministries, public services or French local Authorities in particular, as well as among its partners of the European Union or of the International Network of Basin Organizations (INBO) of which IOWater is responsible for the Technical Permanent Secretariat.

### "Capacity building for better water management"

**International Office for Water**  
International Institute for Water Administration - AQUACOPE

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<http://www.iowater.org>

The International Office for Water is in charge of the Permanent Technical Secretariat of the International Network of Basin Organizations (INBO).

In November 1996, it was associated with the secretariat of the International Conference on Local Water Management.

It was also associated with the organization of the International Conference on Water and Sustainable Development, held in Paris in March 1998.

The International Office for Water (IOW) was founded in 1991 as an independent association of public interest. The members of its board of directors come from French or foreign state or private entities that provide recognized know-how in the field of water.

The International Office for Water aims at developing **water management expertise** in France but also **in the world** and operates exclusively **in the field of water**.

Its activities focus on capacity building by training in personnel public and private entities, as well as managing and disseminating knowledge and know-how through international cooperation projects.

IOWater was the main French operator involved in the Körös/Crisui Project.

*Aquacopec: the international department of IOWater*

# Beneficiary institutions

Hungarian regional institutions	
TTREWD (Trans-Tisza Region Environmental and Water Directorate)	
TTREI (Trans-Tisza Region Environmental, Nature Protection and Water Inspectorate)	
KRDEW (Körös Region Directorate for Environment and Water)	
LTREI (Lower-Tisza Region Environmental, Nature Protection and Water Inspectorate)	
Romanian regional institutions	
Crisui Water Directorate	

*Regional Institutions*

*International institution*

The International Commission for the Protection of the Danube River (ICPDR)



*National institutions*

French Ministry for Ecology and Sustainable Development	
The Hungarian Ministry of Environment and Water	
The Romanian Ministry of Environment and Sustainable Development	
National administration "Romanian Waters"	

# Service providers

## Accidental water pollution



CEDRE



KSZI-FFT

Environmental Consultants Ltd.  
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Phone: +36-1-237-1490, Fax: +36-1-237-1499  
E-mail: kszif@csbto.hu  
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Green Map



Beva Chip



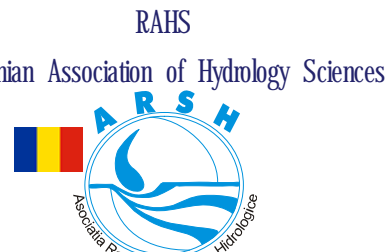
ECO-DECISION

RÁKOSI ES KISS BT  
H-1121 Budapest, Remete út 10/C fsz.3  
Expert: Judit Rakosi



UTC B (University of Bucharest)

## Water quality Modelling



RAHS

Romanian Association of Hydrology Sciences



BGRM

Geoscience for a sustainable Earth

brgm

## Ground Water management



Groupe Carso



Vituki Consult

VITUKI Consult Environmental and Water Management Consultant

« Foundation for Applied Information Technology in Environment and Global Changes »

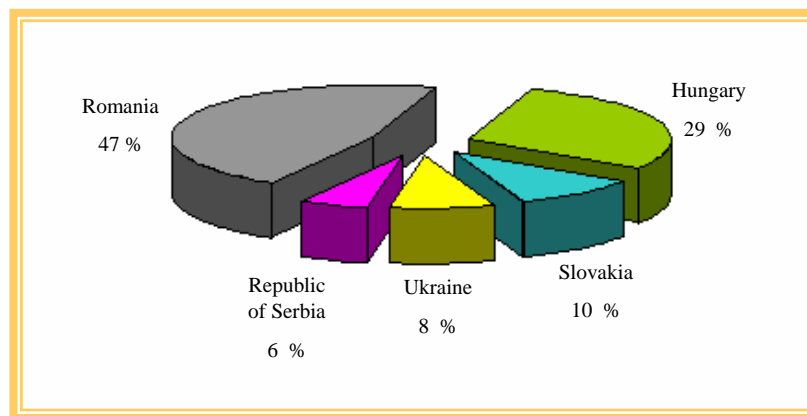


## Programme of measures



# Körös/Crisuri pilot basin within the Tisza/Tisa sub-basin

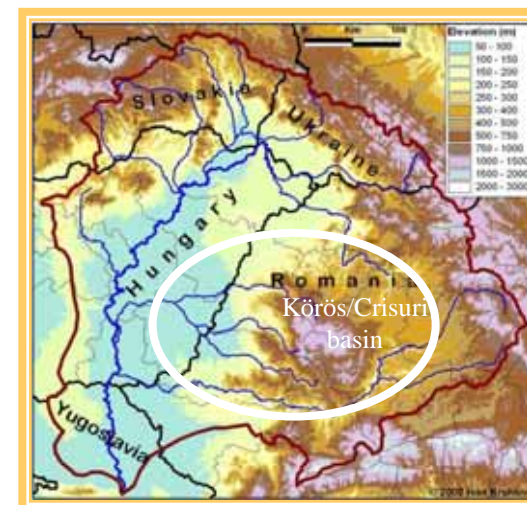
The Tisza/Tisa river is the largest (157,186 km<sup>2</sup>) and longest (966 km) tributary of the Danube (801,463 km<sup>2</sup> and 2,780 km long). It is also one of the most threatened rivers in Europe. The five countries bordering the river basin are Romania, Hungary, Slovakia, Ukraine, and Republic of Serbia. The pollution accidents that affected the Tisza/Tisa in early 2000 underlined the need for the further strengthening of international cooperation between Romania and Hungary regarding all aspects related to integrated water resource management at river basin level. Flood management is also a major issue for the basin.



*National shares in the Tisza basin area*

*The springs of the Körös/Crisuri, a sub-basin of the Tisza/Tisa shared between Hungary and Romania, are located in the Carpathian mountains in the north-west of Romania. Its waters cross the border when entering the Hungarian plain.*

*Geography of the Tisza River Basin*



The Körös/Crisuri sub-basin is shared between Hungary and Romania. It is one of the main sub-basins of the Tisza/Tisa. The springs that feed the Körös/Crisuri are located in the Carpathian mountains in the Northwest of Romania. Its waters cross the Hungarian border when entering the plain. The catchment area covers approximately 30,000 km<sup>2</sup>. The yearly volume of water resources is estimated at 3,437 million m<sup>3</sup> for the whole basin. Such sub-basin scales appear to be perfectly adapted to tackle in depth transboundary issues between the two countries. With the river Samos/Somes north and Maros/Mures south, it is three sub-basins of comparable size to the Körös/Crisuri rivers that are shared in total between the two countries.

# Project objectives

The project was split into five Work Packages, all of which have contributed to the development of a **harmonised River Basin Management Plan and Watershed Contingency Plan**.

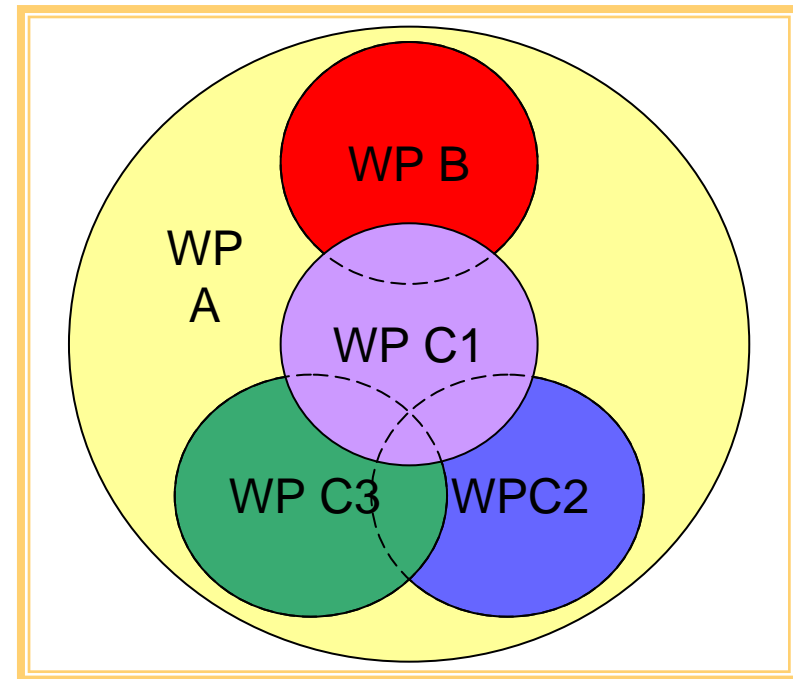
Work Package A: Project management and coordination.

Work Package B: Enhancement of response to accidental water pollution.  
This supported the preparation of the international Watershed Contingency Plan and the preparation of specifications for upgrading response tools in the case of accidental water pollution.

Work Package C1: Data Management.  
This allowed the definition of a common procedure for harmonising data management to arrive at a shared vision of the basin, notably through use of GIS.

Work Package C2: Support for the current implementation of the WFD.  
This dealt with the first steps required by the directive (monitoring, risk assessment, determination of the main basin issues, etc.).

Work Package C3: Preparation of the River Basin Management Plan.  
A pilot preparation of the programme of measures, with an accent on participation, and assessment of future impact with modelling and affordability with economical analysis.



*The 5 work packages*

*Work Package A was used to coordinate between the other work packages. Work package C1 on data management served all thematic activities*

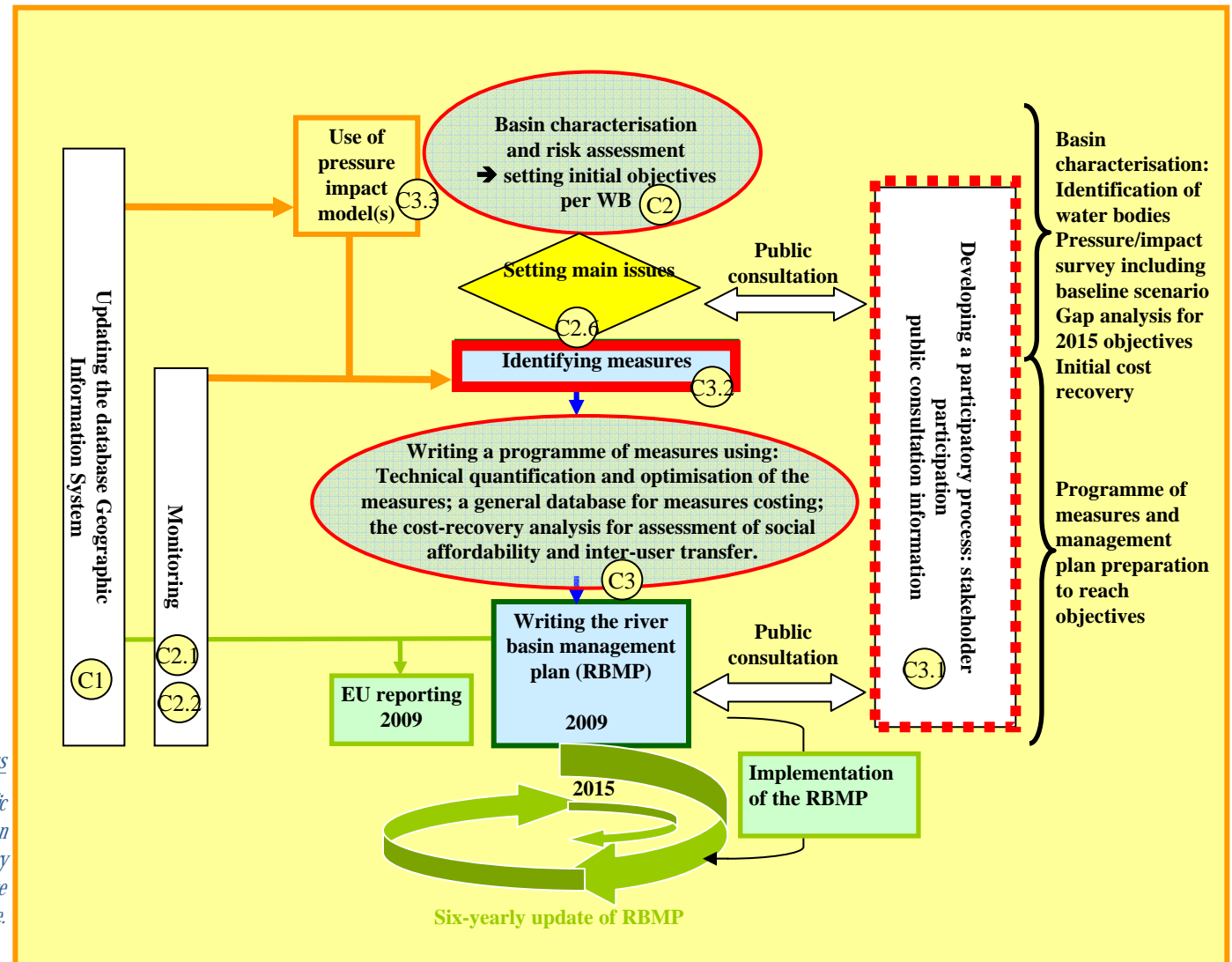


# The River Basin Management Plan (RBMP)

## and the Programme of Measures (PoM)

The preparation of an integrated River Basin Management Plan (RBMP) is a complex process requiring an important level of coordination between the different partners. The illustration on the right illustrates the road map that was used in the project: the project activities were designed according to the steps necessary for preparing an RBMP of this type. It led to the elaboration of one of the very first RBMPs of the Danube basin.

The recommendations made and lessons learnt through the process have been compiled in the "Guidelines for WFD implementation in Romania and Hungary".



### *Water management planning process*

*The planning process illustrates both the cyclic nature of the 6-year river basin management plan to be implemented from 2009 and the necessary preparation steps to be taken to put the mechanism into place.*

# The River Basin Management Plan (RBMP) and Programme of Measures (PoM)

The preparation of a comprehensive programme of measures (PoM) based on the management plan of an elementary international sub-basin

The planning process presented on the page 10 was fully implemented during the project on the Sebes Körös/Crisuri Repede sub-basin. The benefit of focussing this elementary planning unit scale were the following:

- To directly identify the individual concrete measures foreseen in the basin for river quality restoration.
- To present the PoM to the stakeholders at a familiar local scale.
- To apply certain measures, proxies or calculations in the whole elementary basin when individual data per water body were not available or too time-consuming to collect in relation to their relative importance.
- To apply models for the evaluation of measures impact on the whole elementary basin using monitoring stations for calibration.

This work paved the way for building a PoM at larger basin scale (whole Körös/Crisuri basin, Tisza/Tisa or Danube basin) by aggregation of the different type of measure cost of the different elementary units.



*The elementary planning units in the Körös/Crisuri basin*

*An elementary management plan for each elementary planning unit. A bigger scale the cost of the programme of measures is obtained by aggregation.*

# The River Basin Management Plan (RBMP) and the Programme of Measures (PoM)

## Economic analysis for a realistic and affordable plan

The integration of economical factor is a key for sound and efficient progress in water management. Information and recommendations were given for the concrete application of the following steps for the preparation of the basin management plan:

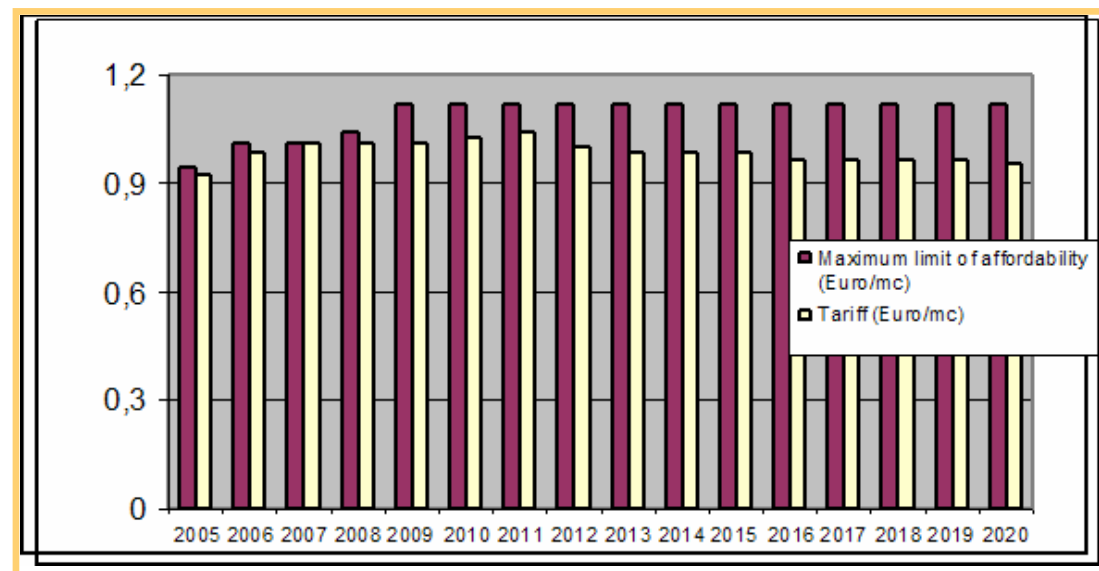
The development of a baseline scenario relating to the evolution of the impact of diffuse pollution from agriculture, to drinking water and wastewater treatment needs, and to mining industry discharge, to anticipate changes in the basin up to 2015;

The preparation of a national database on the cost of measures, listing and defining all the potential measures to be applied in the basin for each sector (urban, agriculture, industry), and giving information on their efficiency and pollution reduction effect.

The costing of measures needed in each sector including for intervention on hydromorphology and public awareness rising

The cost recovery for water services in small, medium-sized and large communities to test the affordability of the PoM

Comparison between maximum limit of affordability expressed as maximum acceptable water price for the economically weakest inhabitant and water tariff foreseen to cover new investments needs



# The River Basin Management Plan (RBMP) and the Programme of Measures (PoM)

The programme of measure: A reference document to be shared by all stakeholders and the public

The present PoM, following the logic of the River Basin Management Plan, comprises eight parts:

Part 1 Presentation of the planning process and objectives.

Part 2 Presentation of the elementary basin (water bodies structure, characteristics).

Part 3 Presentation of the anthropogenic pressures at the origin of a risk of non-attainment of a good status in the different water bodies.

Part 4 Presentation of the main water issues related to basin analysis and public demand.

Part 5 Presentation of the preliminary objectives for the sub-basin water bodies and of the anticipated measures for meeting these objectives, organised by the stakeholder responsible for the future.

Part 6 Presentation of the measure impact assessment to anticipate water body quality after PoM implementation.

Part 7 Presentation of the economic analysis to check the cost-efficiency and affordability of the measures.

Part 8 Presentation of the final objectives for the basin water bodies, which must be both ambitious and realistic regarding economic constraints.

In order to achieve this illustrative document, the methodologies used have been described as clearly as possible. To complete this experience of PoM preparation and facilitate debate with the stakeholders, a “reader friendly” version of the PoM was prepared.



*Fishing in winter and summer*

*The Programme of Measures  
aims at preserving all the  
water uses*

# Transversal project activities for the RBMP

## Public participation

Transparency for efficient action

Public participation is a key tool, clearly identified by the WFD, for making Integrated Water Resources Management possible.

Support to enhance active public involvement in the Körös / Crişuri basin

The main purpose of the project activities in this field was to bring **support to structure stakeholder involvement** in the river management planning process. In addition, **training on public debate techniques** was provided to prepare a **public consultation pilot test on the main water issues** in several municipalities in both national sectors of the basin.

*Romanian leaflet to support public consultation pilot test on main water issues*



# Transversal project activities for the RBMP

## The Public Participation

1. In the Körös/Crisuri Valley, [...] of the population is served by public waste water collection.

Are there waste water treatment plants in or nearby your locality?

Yes ☐ No ☐

From your point of view, do you think that these plants work properly?

☐ Very effective ☐ Rather effective ☐ Rather not effective  
☐ Not effective at all ☐ Does not know

Untreated waste water pollutes groundwater and surface water and has bad effects on health.

How do you see the necessity of further improving and developing the network? (This latter represents financial burden for those involved.)

☐ Very important ☐ Rather important ☐ Rather not important  
☐ Not important at all ☐ Does not know

2. How much would you spend in the next 5 years to improve waste water treatment?

☐ Ø / ☐ < 4 000 Ft/year / ☐ between 4 000 and 20 000 Ft/year  
☐ > 20 000 Ft/year  
☐ Ø / ☐ < 75 ROM/year / ☐ between 75 and 350 ROM/year  
☐ > 350 ROM/year

For the public consultation pilot test, a common questionnaire has been drafted in English and adapted to each country. The main objective of the questionnaire was to ascertain:

- the public's level of knowledge on water issues,
- the public's expectations regarding the main water problems to be solved,
- the local water issues identified by inhabitants,
- the actions that they consider as essential to protect or restore the aquatic environment.

Adaptation by the  
countries

*The first  
common  
English  
version of  
the  
questionnaire*

4. Gestionarea deeurilor se realizează necorespunzător, depozitele existente sunt unuor amplasate în apropierea locuințelor, a apelor, a zonelor de agrement, cauzând poluarea apelor și a solului.

a) Aveți cunoștință de existența unor puncte de colectare a gunșurilor în localitatea dvs? ☐ Da ☐ Nu

b) Unde ar putea fi amplasate punctele de colectare a gunșurilor în localitatea dvs? ☐ În grădina pe malurile râului ☐ În locuri speciale destinate gunșurilor

5. Utilizarea în exces a îngrășămintelor și pesticidelor duce la poluarea râurilor, lacurilor și a apelor frezice.

a) Sunteți îngrășat de această situație? ☐ Foarte îngrășat ☐ Îngrășat ☐ Puțin îngrășat ☐ Nu sunt îngrășat ☐ Nu știu

b) Apele poluate provenite de la fermele de animale sunt gospodărie necorespunzătoare. Cât de importantă este problema din punctul dvs. de vedere? ☐ Foarte importantă ☐ Importantă ☐ Puțin importantă ☐ Neimportantă ☐ Nu știu

6. Apele termale sunt utilizate pentru tratament balnear și ca agent termic de încălzire.

Cât de importante sunt efectele negative ale utilizării apelor termale devenite în rău sau lauz, seversă vești din mediul ambiant? ☐ Foarte importante ☐ Importantă ☐ Puțin importantă ☐ Neimportantă ☐ Nu știu

7. Mineritul este o activitate istorică în bazinul hidrografic Crișuri. Au fost exploatate săcăminte de lauz, cărbune, minerale sulfure, cadmiu și argile.

a) Cât de importante sunt efectele negative ale exploatării minerale sulfure vești din mediul ambiant? ☐ Foarte importante ☐ Importantă ☐ Puțin importantă ☐ Neimportantă ☐ Nu știu

b) Urmare poluării râului chiar după ce unele exploatări minerale au fost închise. Cum evaluați măsurile de mediu? ☐ Multe ☐ Multe ☐ Insuficiente ☐ Nu știu

c) Considerați că închiderea minerale este necesară? ☐ Da ☐ Nu

8. Din exploatarea și prelucrarea lemnului rezultă deeururi de rumeguș și ape uzate.

Cât de importante sunt efectele negative ale industriei lemnului asupra râurilor și lacurilor? ☐ Foarte importante ☐ Importantă ☐ Puțin importantă ☐ Neimportantă ☐ Nu știu

The Hungarian and Romanian questionnaires, once translated, were tested in a selected area in both countries and the results carefully analysed. Several public debates were organised, gathering up to 80 participants.



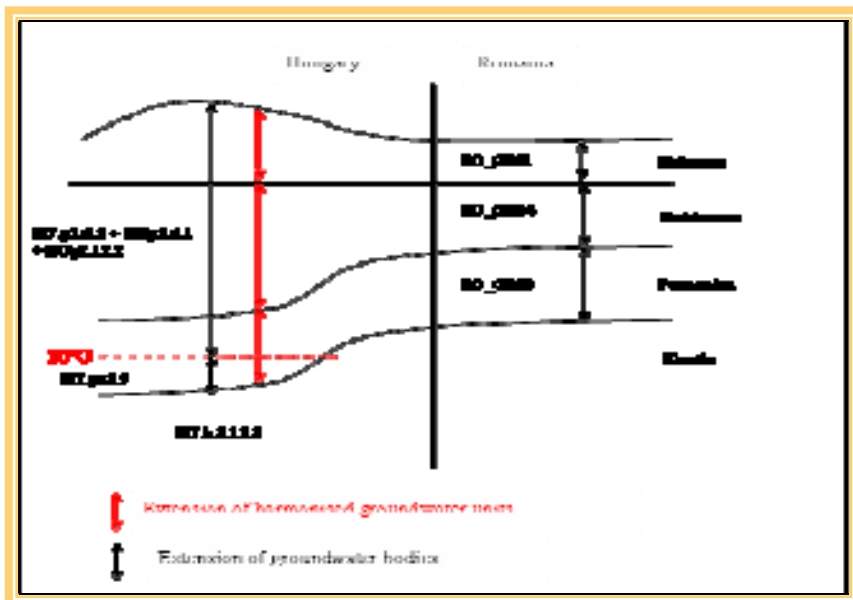
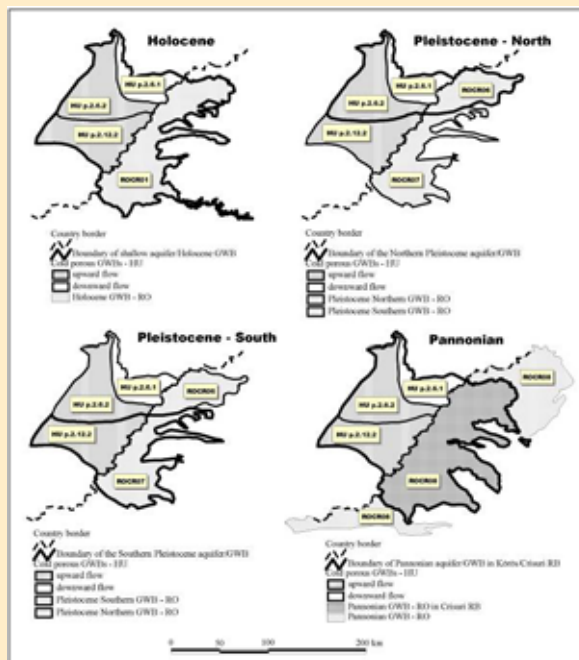
# Transversal project activities for the RBMP

## Surface and ground water quality monitoring and modelling

### 1. Groundwater monitoring

#### Groundwater bodies delineation

Hungarian and Romanian experts have harmonised the delineation of the transboundary groundwater bodies identified for the purposes of the Water Framework Directive



Because the geological and hydrogeological structure of the area is complex, a conceptual model showing the vertical relationships of the main aquifers was drawn up. This diagram allows a better understanding of the groundwater bodies and represents a key element for coordinating the implementation of the WFD.



# Transversal project activities for the RBMP

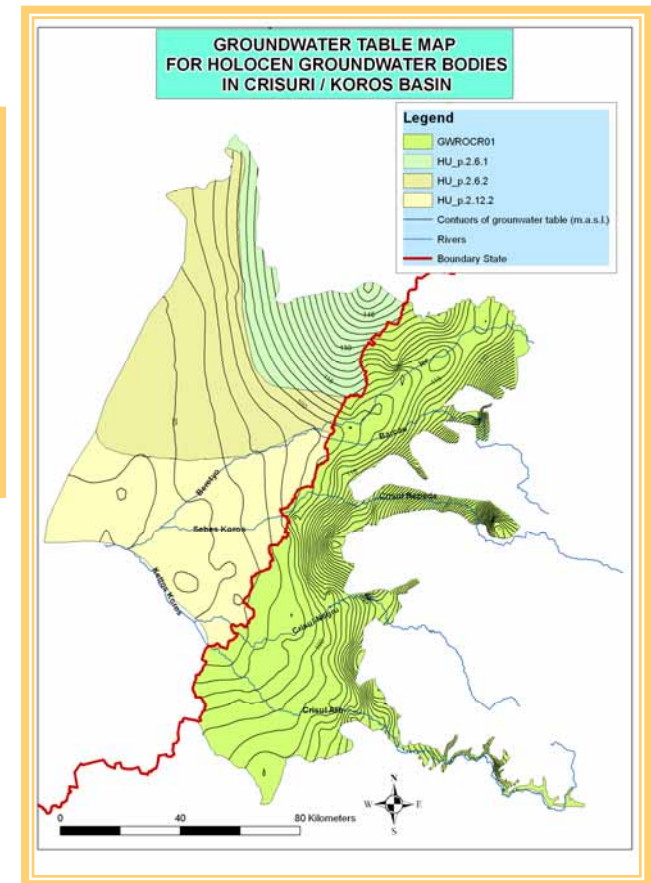
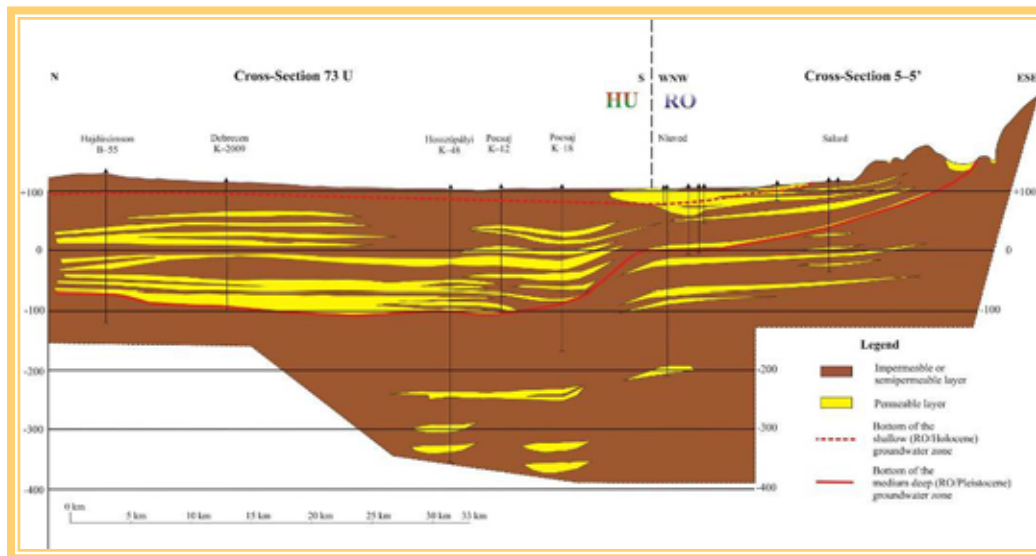
## Surface and ground water quality monitoring and modelling

### 1. Groundwater monitoring

#### Characterisation of groundwater bodies

Thanks to the cooperation between Hungarian and Romanian groundwater experts, the common characterisation of the aquifers within the study area was initiated. This characterisation process led to several products:

- 6 geological cross-sections,
- a piezometric map for the Holocene aquifer,
- common guidelines for the implementation of WFD monitoring networks (quantitative and qualitative aspects)
- a preliminary assessment of groundwater bodies' chemical and quantitative status.



The project results on groundwater have been published and presented at the Belgrade conference on ground water management in the Danube River Basin and other large river basins.

# Transversal project **activities** for the RBMP

## Surface and ground water quality **monitoring and modelling**

### 2. Surface water

As well as initiating an assessment of the monitoring system used by the two countries in line with Water Framework Directive requirements, a particular effort was made to organise seminars and training sessions for harmonising practices.

A blank quality management audit of Hungary and Romania's two main regional laboratories.

A training session on water quality management analysis to produce reliable data.



*Participants on a biological sampling methods exercise*



*Common sampling test in the Körös/Cisuri Repede sub-basin: a step towards intercalibration*

A common fish and invertebrate sampling test: a step towards biological monitoring results.

An international seminar on surface water monitoring with 23 participants from Central and Eastern European countries (10 nationalities) to define common recommendations.



*International seminar on surface water monitoring in Bucharest, June 2006*

# Transversal project activities for the RBMP

## Surface and ground water quality monitoring and modelling

Modelling is the most elaborated way for assessing the effect of a programme of measures on specific water quality parameters. Its use is demanding but strengthens the coherence of the mechanisms set up for planning the measures needed to restore the water quality on a river basin.

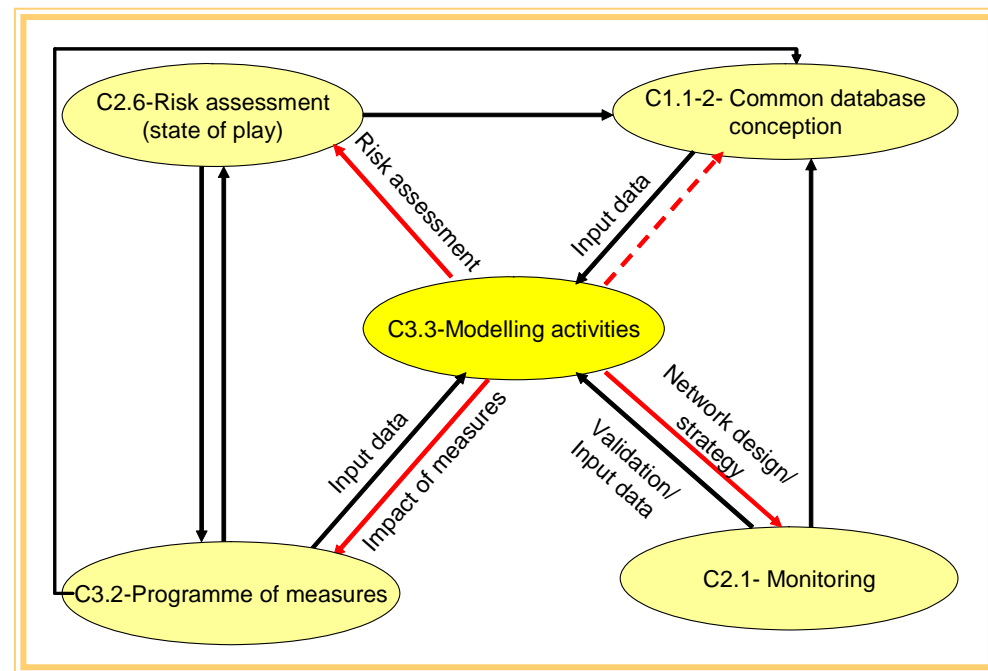
During the project, the first step was to make an overview of existing modelling tools and to undertake preliminary analyses on their compatibility with available data and the priority assessment needed. This led to the selection of the most appropriate tools.

On the international Sebes Körös / Crisuri Repede sub-basin, the assessment of the effect of the programme of measures was undertaken:

- For organic material reduction with model Qual2K
- For nutrient reduction with model WAC

This work was closely linked with the preparation of the Programme of Measures. Supplementary measures were designed when the model showed that the basic measures were not sufficient to reach a good status objective.

The common modelling at international level demonstrates the very high level of international coordination reached thanks to the project.



*Relation of modelling with the different activities linked to the preparation of the PoM*

*The way to assess the effect of the programme of measures has to be decided as early as possible if data collection is to be well adapted and efficient.*

# Transversal project activities for the RBMP

## Data Management

Data management is at the core of decision making. In the case of transboundary water management, it is a fundamental transversal activity that aims to organise production and access to the information necessary for planning, modelling, map production, public information, etc.

To be efficient, any water information system must take into consideration the existing procedures and tools used by various actors at national level, as well as at local and regional level.

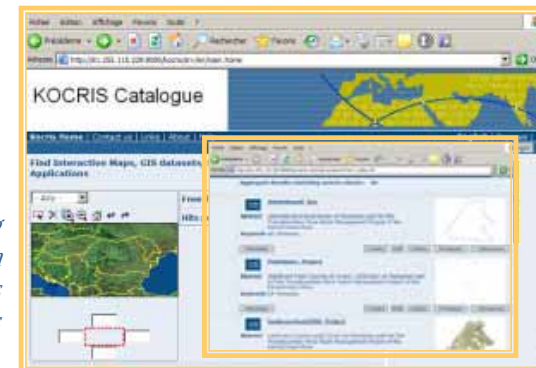
Within the Körös Crisuri project, particular attention was paid to local and national data and information management procedures, and to those promoted by the ICPDR portal and through the Danube River Basin GIS project.

Another key tool, in the form of a catalogue of metadata and data sources available on Internet, was set up to enable the sharing of meta data between international partners involved in basin management. This tool appears to be a powerful incitement for data structure harmonisation between different administrative bodies within a country.



*Core members of the IT working group*

*The IT group comprised Romanian and Hungarian national experts and was animated by Paul Haener from IOWater*



*Internet application for sharing meta data information between different institutions and countries*

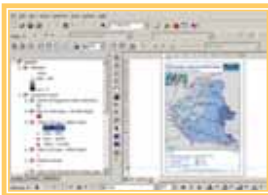
# Transversal project activities for the RBMP

## Data Management



*The project web site*

GIS



*Web mapping prototype*



Under the technical coordination of IOWater, Work Package C was organised as a service provider for the other project activities in order to answer to the needs of the different working groups.

**A common technical platform to facilitate the production and the dissemination of harmonised information was swiftly set up.**

On the basis of a first context-and-need analysis, the data management experts and decision-makers on water management defined the main necessary components for the project's technical platform: the "Körös CRisuri Information System" (KOCRIS) was born.

By the end of the project, KOCRIS included the following four main technical components:

- 1) A common website for the dissemination of information.
- 2) A GIS following common procedures for the production of maps.
- 3) A web-mapping prototype.
- 4) A catalogue of metadata and data sources available on Internet.

*Production of 4 main international map series*





# The Watershed Contingency Plan (WCP)

In the domain of accidental water pollution, institutional organisations play a key role in improving warning systems and coordination in the case of intervention. Since various major accidental water pollution events have affected this region, including an important oil spill in the Körös/Crisui catchment area on river Berettyó in 1995, this crucial issue deserves special attention, given its strong transboundary character. The twin subjects of better preparation for accidental water pollution, and the intervention itself, were approached through back-up for the preparation of a draft common watershed contingency plan and the development of a harmonised intervention strategy.

The plans were prepared by each country following the outline provided by *Cedre*. The final WCP takes the form of a joint document for the *Körös/Crisui and Berettyó/Barcau* rivers, translated into Hungarian and Romanian. This activity provided an opportunity to organise regular bilateral meetings, gathering national and regional experts to discuss:

- Similar methodology for identifying pollution sources;
- The possibilities of bilateral cooperation for the response;
- The creation of a bilateral working group for transboundary pollution feedback and plan updating;
- The organisation of regular common training sessions and exercises.

## OUTLINE OF THE WATERSHED CONTINGENCY PLAN

1. DESCRIPTION OF THE WATERSHED
  2. ACCIDENTAL WATER POLLUTION PREVENTION AND CONTROL
  3. POTENTIAL SOURCES OF ACCIDENTAL POLLUTION
  4. RESPONSE PLAN
  5. ALARM OVER / POST-CRISIS MANAGEMENT
  6. FEEDBACK / PLAN UPDATING
- COMMUNICATION CARD IN CASE OF OBSERVATION OF AN ACCIDENTAL POLLUTION

### Practical bilateral exercise

An practical bilateral exercise was organised in the framework of this project to test the plan and operational procedures.



# The Watershed Contingency Plan (WCP)

Several steps are necessary for defining a prevention plan:

- Collection and evaluation of the existing data
- Analysis of current procedures in Hungary and Romania
- Recommendation for a harmonised strategy
- Elaboration of common maps and recommendations for the creation of adapted response tools



In this way, a series of maps has also been prepared including data harmonisation with the support of data management activity:

1. River basin overview
2. Water management
3. Geology and soil
4. Groundwater
5. Protected areas
6. Water quality
7. Water uses
8. Potential accident risk spots
9. Location of intervention site equipment response

For example, part 4 of the watershed contingency plan includes all the operational procedures and gathers all the practical information needed by both countries in case of emergency:

- Alert / alarm procedures
- Identification / evaluation of pollution
- List of people to be notified
- Co-operation agreements
- Response organisation
- List of available staff
- List of equipment / materials
- Response strategy (for each type of pollution)
- Waste management
- Communication
- Health and safety
- Response diary / record keeping / archives





French Global Environment Facility (FFEM)  
[www.ffem.net](http://www.ffem.net)



International Office for Water  
[www.oieau.fr](http://www.oieau.fr)



The French Ministry for Ecology, Development and Sustainable Planning (Ministère de l'Écologie, du Développement et de l'Aménagement Durable) (MEDD)  
[www.ecologie.gouv.fr](http://www.ecologie.gouv.fr)



International Commission for the Protection  
of the Danube River (ICPDR)  
[www.icpdr.org](http://www.icpdr.org)



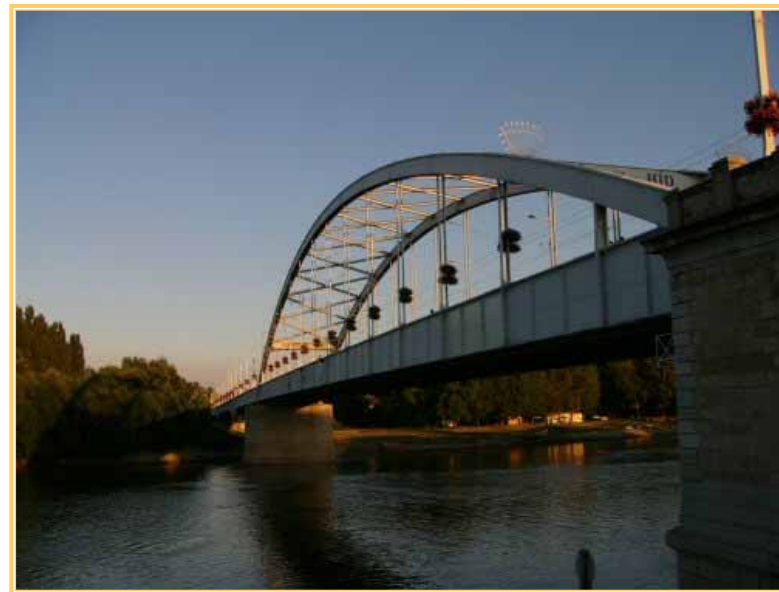
The Ministry of Environment and  
Waters of Hungary  
Környezetvédelmi és Vízügyi  
[www.kvvm.hu/index.php](http://www.kvvm.hu/index.php)



The Ministry of Environment and  
Waters of Romania  
Ministerul Mediului si Gospodarii  
Apelor  
[www.mmediu.ro/home](http://www.mmediu.ro/home)



National Administration "Romanian Waters"  
Apele Române  
[www.rowater.ro](http://www.rowater.ro)



**Transboundary River Basin Management of the Körös/Crisuri  
River, a Tisza/Tisa sub-basin**



**THANK YOU FOR YOUR ATTENTION !**