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International
Commission
for the Protection
of the Danube River

Internationale
Kommission
zum Schutz
der Donau

ICPDR Annual Report 2006

Deutschland // Österreich // Česká republika // Slovensko // Magyarország // Slovenija // Hrvatska // Bosna i Hercegovina
Srbija // Crna Gora // România // България // Moldova // Україна



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Foreword

The year 2006 was a challenging one for the Danube River Basin, but all Danube countries worked hard to further develop constructive cooperation to overcome the ordinary and unexpected problems that appeared during the year – like the severe floods in the spring. These events demonstrated once again that we need to cooperate to find the best solutions for emergencies and that the ICPDR is a great platform for negotiation, collaboration, development and further progress in the region.

Implementation of the EU Water Framework Directive (WFD) was and remains a key activity of the ICPDR. Significant progress was made in the field of sub-basin cooperation through continuation of the Tisza project, starting development of the Prut initiative and the Danube Delta cooperation with involvement from Romania, Moldova, Ukraine and international institutions. This process strengthens the cooperation between these countries in order to facilitate and better harmonise implementation of the WFD provisions in the regions – especially the elaboration and implementation of the Integrated Management Plan for the entire Danube River Basin.

It was also a very successful year for the Danube family. The number of observers to the ICPDR increased, contracting parties worked more efficiently to further develop regional cooperation, successful cooperation continued with the Black Sea Commission, the ICPDR brand was brought to other river protection and navigation commissions and more stakeholders and members of the business sector and civil society were involved in events throughout our common basin.

This year's Danube Day celebrations in Moldova were celebrated in a transboundary context. In Moldova, the day was turned into an entire week involving thousands of people from both sides of the Prut River. This was a wonderful opportunity to bring together people from varying backgrounds and with different visions, and to raise awareness of the Danube's problems and the plans for its future development by making them feel united by our common river – the blue Danube.




*Constantin Mihailescu
ICPDR President 2006,
Minister of Environment
and Natural Resources
of Moldova*

Events in 2006 demonstrated once again that the ICPDR is a great platform for negotiation, collaboration, development and further progress in the region.

1. Working for the entire river basin: operational and institutional framework

Since its establishment in 1988, the ICPDR has grown into one of the largest and most active international bodies of river basin management in Europe. Working toward the protection of the Danube River and its tributaries and groundwater resources throughout the basin, the ICPDR has also been nominated as the platform for coordination of the implementation of the EU Water Framework Directive. The ICPDR pursues its mission by making recommendations for the improvement of water quality, developing mechanisms for flood and accident control, agreeing on standards for emissions, assuring that these are reflected in the contracting parties' national legislations and applied in their policies. For everyone in the river basin, 2006 was a year of improvement and development.

In 2006, Moldova took over the presidency of the ICPDR, and though Moldova is a small country it brought much to the work of the ICPDR. The NGO (non-governmental organisation) and Business Forum that took place in October 2006 in Chisinau was one of the first steps toward building a new dialogue between governments, NGOs and the private sector. This dialogue will play an important role in the implementation of the EU Water Framework Directive (WFD) as well as in the provisions of the Danube River Protection Convention and will further encourage the involvement of civil society in the implementation of the integrated river basin management plan.

Membership in the ICPDR was adjusted slightly in 2006 to accommodate the split of Serbia and Montenegro into two separate states in June. Serbia took over as a full contracting party to the Danube River Protection Convention and continued its membership of the ICPDR. Montenegro has remained in contact with the ICPDR, as more than 2000 km² of the country's territory lies within the Danube River Basin. This relationship is leading towards Montenegro joining the ICPDR as a full contracting party soon.

Closer relationships with navigation

Historically the Danube and its tributaries have formed important trade routes across Europe. To further cooperation on navigation and transport issues, the ICPDR contacted the Danube Commission and the International Commission for the Protection of the Sava River Basin to initiate an intense, cross-sectoral discussion process to create a 'Joint Statement on Inland Navigation and Environmental Sustainability in the Danube River Basin'. This process will be carried out in 2007.

Two organisations joined the ICPDR as observers this year – via donau and the European Barge Union (see chapter 9 for more details). These two organisations will strengthen the involvement of the navigation sector and help ensure navigation issues on the Danube and its navigable tributaries are brought up in the implementation of the WFD and included in the Danube River Basin Management Plan.

Collaborating with business in the basin

Cooperation with business has always been an important part of the ICPDR's work to involve stakeholders in integrated river basin management. In 2006, partnership with the business community continued to build support for ICPDR's programmes and activities. Cooperation with organisations like the Alcoa Foundation and The Coca-Cola Company and its largest European bottler Coca-Cola Hellenic Bottling Company S.A. (Coca-Cola HBC) have made possible vital advances in water quality monitoring efforts and helped create public participation programmes throughout the entire basin (see chapter 10 for details).

*The core team at the Secretariat, supporting the ICPDR:
Philip Weller, Executive Secretary; Anna Koch, Financial Officer;
Alex Höbart, Information Management & GIS; Jasmine Bachmann,
Public Participation & Public Relations; Sylvia Kersch, Management Assistant;
Birgit Vogel, River Basin Management; Igor Liska, Water Quality &
Water Management; Mihaela Popovici, Pollution Control & Water Management.*



One tool to come out of the ICPDR's partnership with business is the Danube Box. The Danube Box is a comprehensive teaching kit that helps give schoolchildren a greater understanding of the river basin, the threats facing the river and the need to preserve water resources. The Danube Box was created as part of the 'Green Danube Partnership' between the ICPDR, The Coca-Cola Company and Coca-Cola HBC. Coca-Cola is committed to funding the implementation of the Danube Box in as many Danube countries as possible, and following the code of conduct of Coca-Cola, no marketing of any of their products is linked to the Danube Box (see chapter 12 for more details).

Preparing for the EU Water Framework Directive

Implementation of the WFD continues to be the highest priority for the Danube countries. Much of the ICPDR's work in 2006 was focused on meeting these requirements, including updating [the Road Map and Strategic Paper](#) – which are the basis for fulfilling WFD obligations (see chapter 3 for details).

Further development toward the WFD is under way by the Ad-hoc Information Management and Geographical Information System Expert Group. A series of maps of the Danube River Basin and the Strategic Plan for a Danube River Basin geographic information system (GIS) have been developed, which will help the ICPDR provide tools to manage and share vital information.

The joint management of the Sava River Basin – shared by Slovenia, Croatia, Serbia and Bosnia and Herzegovina – is a crucial test case for the implementation of the WFD for the Danube and Europe. The International Sava River Basin Commission was established in 2005 and opened its Secretariat in Zagreb, Croatia. The Sava Commission implements the Framework Agreement on the Sava River Basin and the Protocol on the Navigation Regime, both signed in 2002, which promote regional cooperation on issues related to navigation, economic development, comprehensive water management and environmental protection.

Responding to danger

A number of spills occurred in 2006; the most serious were oil spills in October and December (see chapter 5 for details). These accidents caused problems in Bulgaria, Romania and Serbia and triggered intense discussions between all countries on how better to manage incidents. The spills highlighted the need for cooperation and strengthened efforts related to the Accident Emergency Warning System and the ICPDR Accident Prevention Task Group.

Floods in the spring and summer of 2006 were a lesson in preparation. In many cases, while flood waters threatened communities, danger was avoided by swift implementation of flood control measures. The floods once again reinforced the need to work together and to see what can be done to promote effective measures (see chapter 6 for details).

A structure of support

Finally, there have been several staff and structural changes within the ICPDR secretariat. Following the reorganisation of the ICPDR's expert bodies and the secretariat in 2005, two staff positions have been changed or restructured: the Technical Expert for Information Management and GIS and the Technical Expert for Public Participation and Public Relations. In addition, in 2006 the ICPDR provided internships to representatives from Danube countries to work in the ICPDR Secretariat for a period of one year. These internships gain valuable experience working in the most international river basins in the world.

2. Danube check-up: water quality and hydrological situation in the Danube River Basin

As the most international river in the world, the waters of the Danube and its tributaries connect 19 countries. The changing water levels and water quality affect the lives of some 81 million people living in the basin.

The total discharge of the Danube River to the Black Sea was 265.6 km³ in 2006, or about 128% when compared with the long-term average of 207 km³ total annual discharge. In terms of the average mean flow, its value in 2006 was 8423 m³s⁻¹ compared with a long-term average of 6500 m³s⁻¹.

Assessing the hydrological situation

A comparison of the 2006 meteorological data for the upper Danube Basin with the long-term mean between 1961 and 1990 shows a higher-than-average sunshine duration, a positive temperature deviation and a precipitation deficit – all similar trends to 2005. In the upper Danube, 2006 was a year of weather extremes: eight out of twelve months were drier than normal (with a deviation range of 4% to 49% of the mean for 1961–1990) while the spring months of March to May and August (which had the highest monthly precipitation of the year at 166 mm) were too wet in comparison to the mean for 1961–1990. March in particular was distinctly wetter (+90%) due to heavy snow fall. An extraordinary incident was the long period of snow cover (from January to March).

The monthly temperature distribution also shows a majority of warm months; eight out of twelve months were warmer than normal. The highest deviation of the long-term mean (about +4.1 °C) occurred in July – by far the warmest July since weather recording began. Also, the autumn months and December were particularly warm. The remaining months remained statistically cold, especially January.

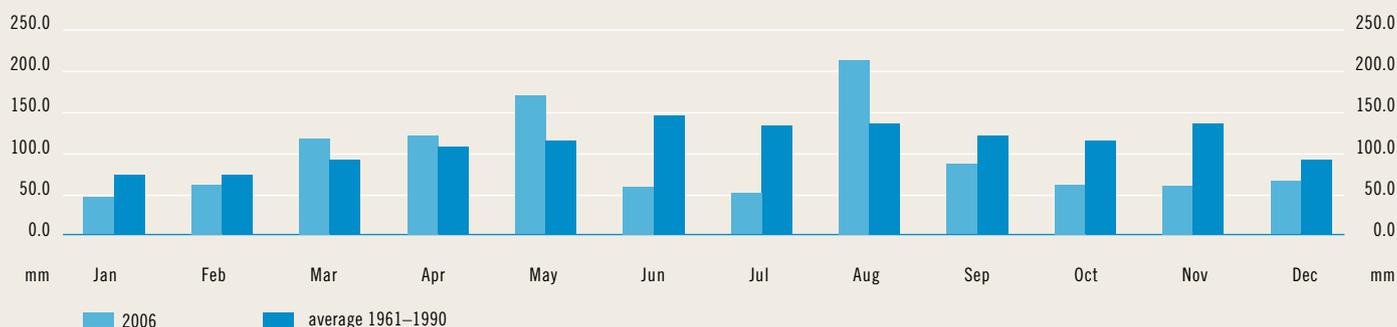
These meteorological extremes were also reflected in the discharge of the Danube and its tributaries. The first small floods occurred by February, but it was the combination of the March and April precipitation and the beginning of the snowmelt that caused a major increase in discharge of the Danube as well as severe flooding. In the following months, however, this trend was reversed. A drought period occurred in July, and in the autumn low flows continued until December. Heavy thundershowers in June were only of local importance and increased flow for short time periods only. The long-term monthly average was exceeded just once during August as a direct consequence of continuous rain.

High waters in the basin

In the Czech Republic, the month with the highest precipitation was August at 157 mm, and the minimum precipitation was in September at 18 mm. Stream flows in the Morava River and the Czech part of the Thaya River were significantly higher than long-term mean flows. Melting snow together with rainfall in March and April caused a flood in the Czech part of the Thaya Basin (a 10-year flood) and in the Morava Basin (a 20–50-year flood). In Hungary, high flood waters passed into the Danube in early April, producing historically high water levels downstream of the Hron and Ipeľ/Ipoly mouths. The almost simultaneous floods on the Tisza River produced historical water level maximums downstream of Tiszaug down to the mouth (Titel in Serbia).

Precipitation in Slovenia in 2006

FIG. 1

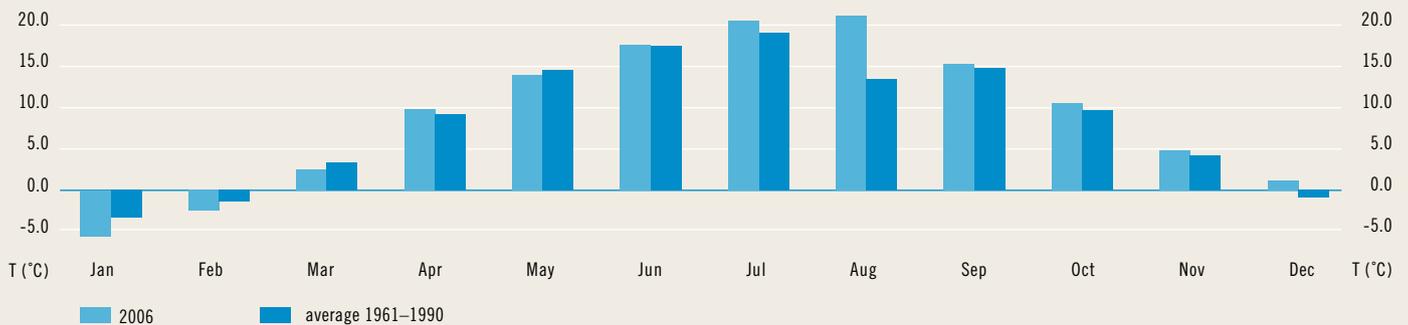


High waters on Slovenian rivers occurred in an unusual period of 2006 and approximately 50% less high water than normal was recorded. The frequency of the flood waters was unusual with high waters occurring in spring, no normal floods in autumn and torrential floods in late summer. The major flood in 2006 occurred in March on the Krka River in south-eastern Slovenia. The Krka also flooded in an uncharacteristic flooding area, reaching a maximal discharge of up to 20-year return periods.

On the lower Danube, there was generally a slight positive deviation from a long-term average in both temperature and precipitation during most of the year. In Romania in 2006, the mean, all-country thermal pattern was 0.1 °C above the climatological norm, ranking within normal limits. The first two months of the year were colder than normal by 1.3–2.0 °C, whereas March and May were colder by 0.4–0.8 °C. The rest of the months were warmer than usual by 0.1–1.2 °C, the largest positive deviation against the normal being 1.8 °C in December. It is remarkable that although positive deviations were not very large, every month from April to the end of the year was warmer than the reference period, May excepted (fig. 2).

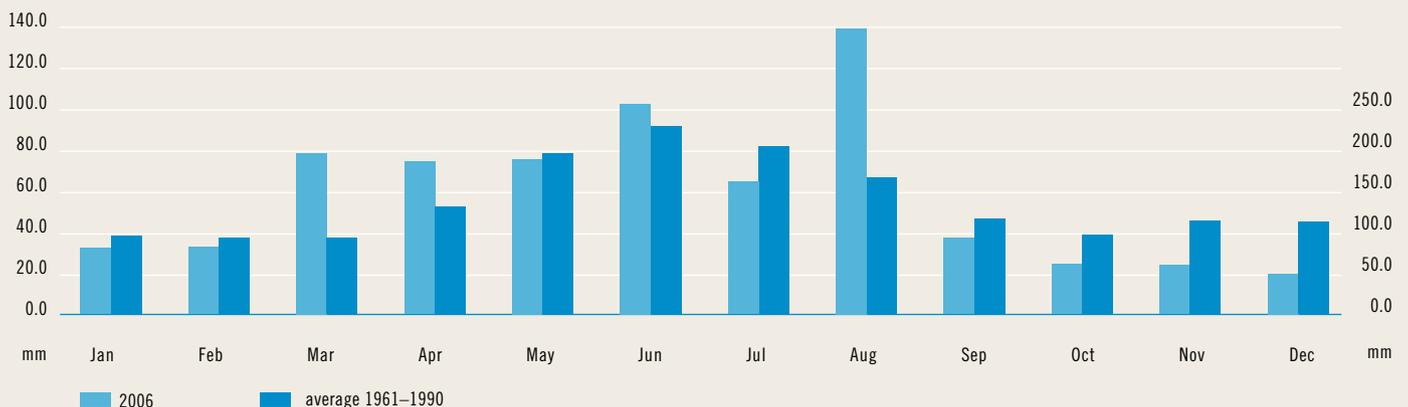
Monthly temperature in Romania in 2006

FIG. 2



Precipitation in Romania in 2006

FIG. 3





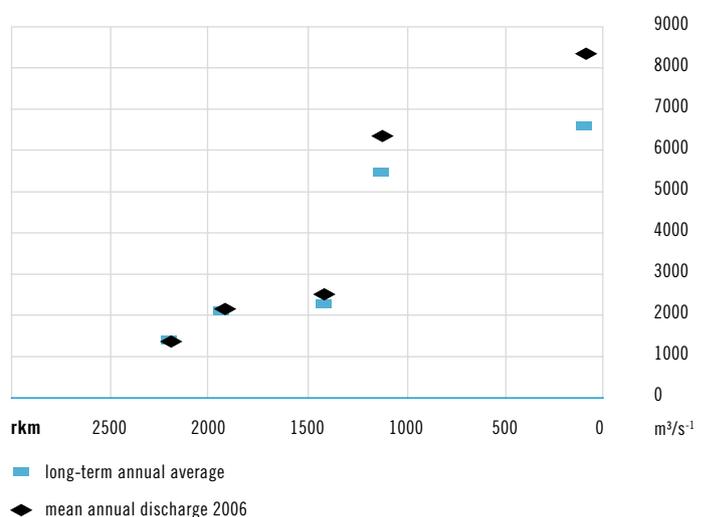
The Danube River Basin provides habitats for more than 300 varieties of birds, all of which depend on a healthy river system for survival.

At the whole-country level, the amount of precipitation in 2006 was 683.5 mm (against a 647 mm climatological norm). The amounts above normal were in January, February, May, July, September through December and those in excess of the average were in March, April, June and August, and resulted in a 5.6% annual positive deviation against the reference period, with a precipitation pattern within the normal limits.

Wide deviations in the excess domain against the norm were reported in March at 118.9% and August at 105.8%. From September to the end of the year, the precipitation pattern displayed a deficit, with a 55.0% negative deviation recorded in December (fig. 3).

The Danube – mean annual discharges in 2006

FIG. 4



The values of the total precipitation in 2006 as well as the relative precipitation in the same year when compared to a long-term annual average in the Danube catchment in selected countries are shown in table 1:

In the upper Danube, 2006 was a year of weather extremes: eight out of twelve months were drier than normal, while the spring months of March to May and August were too wet.

Total precipitation in 2006

TABLE 1

| Country | Total annual precipitation in 2006 [mm] | Relative annual precipitation in 2006 [%] |
|------------------------|---|---|
| Germany | 917 | 93 |
| Austria | 1012 | 98 |
| Czech Republic | 719 | 100.5 |
| Slovakia | 772 | 102 |
| Hungary | 584 | 97 |
| Slovenia | 1127 | 84 |
| Serbia | 712 | 105 |
| Bosnia and Herzegovina | 920 | 90 |
| Romania | 683 | 106 |

Looking at water quality trends

Higher than average concentrations of ammonia were recorded in Germany, due to the meteorological conditions in spring. Snowmelt and thunderstorms resulted in elevated values for suspended solids in many samples, accompanied by an increase of concentrations of phosphorus and heavy metals. In the following warm and dry periods water temperature increased significantly but the oxygen regime and nutrients were not affected.

Priority and hazardous substances were generally low or not detectable. A new monitoring programme for pesticides has been implemented, and first results show that pesticides were detected mainly in small rivers exceeding quality standards during the pesticide application period while during the rest of the year concentrations were frequently below detection limits.

In Austria, a further improvement was achieved concerning the saprobiological river water reflecting the situation of organic pollution. The assessment of rivers with a catchment area of >100 km² (total length of river net 11.500 km) in 2005 proved that 88% have already achieved 'very good' or 'good' water quality (saprobiological water quality class I, I-II or II). Some 11% are between 'good' and 'moderate' quality (saprobiological class II-III), and less than 1% is classified with poorer quality due to organic pollution (saprobiological class III).

Monitoring water quality

In 2006 in the Czech Republic, 170–200 parameters were monitored in the Lanzhot station on the Morava River and the Pohansko station on the Thaya River. Most of the results, according to the Czech classification, fell into classes I and II. Some results for COD, Hg, NH₄-N, NO₃-N, SO₄ and PAH were within class III. Fecal streptococcus, BOD, P_{total}, Fe_{total}, AOX exes were in class IV and only chlorophyll was in class V. A number of parameters improved during 2006 relative to 2004: Hg, Ni, Zn and Mn improved from class III to class II, AOX improved from class V to class IV, BOD and P_{total} moved from class III to class IV.

In Slovakia there were no significant changes observed in water quality compared to the 2004–2005 period. For the Danube River itself, as well as for its tributaries the Váh River, the Hron River and Ipel' River, the surface water quality generally shows relatively good conditions in the groups of oxygen regime, basic physico-chemical determinands and nutrients (except for the Ipel' River). Slightly higher concentrations for total iron and total organic carbon were generally recorded. The worst situation regarding water quality is still aluminium concentrations and microbiological determinands (taking into account the national classification system), although an improvement is visible according to the lowered concentrations of both parameters.

////// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Srbija //// Crna Gora //// România ////

Water quality in the Danube has improved during the last decade, but further improvement is still needed.



In general, compared to the previous year, no significant changes in water quality were observed in the Hungarian part of the Danube River Basin. In Serbia, significant changes were not detected as compared to previous years. According to the current categorisation law in Serbia, the water quality of the Danube River in 2006 was class II/III. Values for the Saprobic plankton index as per Pantle-Buch were between 1.82 and 2.40 and the saprobic degree as per Liebman was β -mezosaprobic.

Assessing conditions

There were no major changes observed in water quality in Slovenia as compared to recent years. The water quality at the Sava Jesenice na Dolenjskem monitoring station improved as a result of reduced emission of AOX. According to the saprobic index for benthic invertebrate fauna both Slovenian TNMN stations belong to quality class II.

Based on initial water monitoring assessment results, water quality at the national level in Romania in 2006 was: 85% high and good status water quality, about 8% moderate status and about 7% poor or bad status. The improvement of river water quality in recent years was mainly due to the reduction and disappearance of some industrial and agricultural units, especially the large polluters. At the same time, this improvement was possible as a result of better implementation of measures applied for the improvement of water status – such as increasing inspections and controls and more strict application of permitting procedures by the national water authorities in Romania.

The Saprobic Index (SI) for benthic macro-invertebrates – mean value – was 2.10 at the entrance into the country at Bazias, 2.02 at Pristol/Novo Selo, 2.15 upstream at Arges, 2.1 at Chiciu/Silistra and 2.21 downstream at Reni before the entrance to the Danube Delta.

It was the combination of the March and April precipitation and the first snowmelt that caused a major increase in discharge of the Danube as well as severe flooding.

3. Integrated river basin management: implementation of the EU Water Framework Directive

The EU Water Framework Directive (WFD) is the highest priority for the Danube countries, and all countries within the basin have committed to it, whether they are legally required to or not. The main environmental objectives of the WFD are to reach a good ecological and chemical status for all surface water bodies, a good chemical and quantitative status for groundwater bodies and the good ecological potential for Heavily Modified Water Bodies by 2015.

To meet these objectives, the ICPDR's goal is to compile the Danube River Basin Management Plan, including a Joint Programme of Measures, by 2009. The River Basin Management Expert Group coordinates the work for the River Basin Management Plan with support from all other ICPDR Expert Groups. The creation of the Danube River Basin Management Plan will be possible through the intensive cooperation of all ICPDR Expert Groups and the active input of all Danube countries.

A tremendous achievement towards the River Basin Management Plan was the Danube Basin Analysis (Roof Report) in 2004. This analysis was the first characterisation of the entire Danube River Basin regarding the natural characteristics of the basin and the existing pressures and impacts.

The Roof Report is the basis for all further steps towards creating the Danube River Basin Management Plan. However, several other documents have been drafted to guide efforts towards a joint River Basin Management Plan, including a strategy paper for the development of a Danube River Basin District Management Plan and a corresponding Road Map/Work Plan. The strategic steps and timelines to achieve the final plan are included in these documents.

Significant water management issues

Information from the Roof Report identified four Significant Water Management Issues (SWMI) in the Danube River Basin:

1. Pollution by organic substances
2. Pollution by nutrient input
3. Pollution by hazardous substances
4. Hydromorphological alterations.

Issue papers related to each significant water management issue in the Danube River Basin have been drafted, and will be completed in 2007. The issue papers provide an overall strategy and guidance for addressing each issue, for developing a relevant management approach regarding measures and for improving status – all on a basin-wide scale. The documents include management objectives for the entire basin, based on visions which will guide the Danube countries towards a common environmental aim.

The creation of the Danube River Basin Management Plan will be possible through the intensive cooperation of all ICPDR Expert Groups and the active input of all Danube countries.

Outlining future plans

The River Basin Management Expert Group, together with the other Expert Groups, began work on a summary of the issue papers for the [Document on Significant Water Management Issues](#) as required by the WFD. This document will be the first outline of the Danube River Basin Management Plan/Joint Programme of Measures, describing the overall scope as well as the approach to achieving it. The document will include visions and management objectives for each issue, and will be available to the public by the end of 2007.

The ICPDR, with support from the UNDP GEF/Danube Regional Project, organised a [workshop on WFD and Hydromorphological Alterations in the Danube River Basin](#), on 10-11 July 2006 in Neusiedl/See, Austria. Approximately 70 participants attended the workshop representing all Danube countries, stakeholders, NGOs and the scientific community. The findings of the workshop and its three different working groups provided valuable input for further developing the issue paper on hydromorphological alterations.

The workshop provided a sound basis to enable the definition of the main future tasks/deliverables towards the Programme of Measures related to hydromorphological alterations as part of the River Basin Management Plan, enabled the revision and further development of the [ICPDR Issue Paper on Hydromorphological Alterations in the Danube River Basin](#), will serve as a basis for drafting of the document on Significant Water Management Issues and continued the stakeholder discussion related to the issue of hydromorphology.

Taking action

As part of the activities for the issue paper on hydromorphological alterations, the River Basin Management Expert Group established a [Sturgeon Task Group](#) in the Danube River Basin. All remaining sturgeon populations are near to extinction in the Danube River Basin and action must be taken to ensure they survive. The Task Group identified the overlaps of the Sturgeon Action Plan and the River Basin Management Plan to identify further steps needed. So far, a feasibility study regarding the restoration of longitudinal continuity through the Iron Gate I & II and habitats is included within the [Issue Paper on Hydromorphological Alterations in the Danube River Basin](#) and could be part of the River Basin Management Plan.

Further, in the frame of the activities on hydromorphological alterations, Austria, Hungary and Romania and the ICPDR Secretariat drafted the document 'Management problems of sediment quality and quantity in the Danube River Basin'. The document includes a work plan to support the respective addendum in line with the Roof Report. Operational conclusions focus on the process and further work between 2007 and 2009. It will be annexed to the Issue Paper on Hydromorphological Alterations.

The Danube River Basin Management Plan will include a Joint Programme of Measures and follow the basin-wide approach.

Comparing quality classes

The intercalibration exercise (IC) was finalised in 2006. The Eastern Continental Geographical Intercalibration Group (EC GIG) was jointly coordinated by the River Basin Management Expert Group and Monitoring and Assessment Expert Group. The aim of the IC exercise was to compare national quality classes among countries according to the normative definitions of the WFD. Austria, Bulgaria, the Czech Republic, Hungary, Romania and Slovakia participated in the IC exercise, which included five different types in the Eastern Continental region.

In mid-September 2006 the ICPDR reported the exercise results to the European Commission's Joint Research Centre. The intercalibration exercise was successful within the Eastern Continental region, although it could not be fully completed – the requirements of the WFD are not fully satisfied. The main shortcomings were the existing lack of data and existing WFD compliant methods when the IC exercise was performed. However, the IC exercise improved the knowledge on the issue considerably and the existing gaps are fully identified as the basis for further steps.

Working together

Coordination of sub-basin activities is taking place for the Tisza, Sava, Prut Basins and for the Danube Delta (see boxes), and river basin management plans on the sub-basin level are being prepared. Activities in the Tisza Basin are the most advanced – Tisza Basin Analysis was drafted in 2006 and will be completed in 2007. The Sava Commission initiated the development of the Sava Basin Analysis with ICPDR support.

All ICPDR expert groups are cooperating for River Basin Management Planning, including the Public Participation Expert Group for stakeholder involvement in frame of WFD, and the GIS and Information Management Expert Group, to make the Danube GIS interoperable with the European Water Information System.



The Tisza River (left), together with its tributaries, drains the largest catchment area in the Carpathian Mountains before flowing through the Pannonian Plain to the Danube River. The Sava River (right) boasts large retention areas that are the most effective flood control systems in Europe.

The Tisza River Sub-basin

The Tisza River Sub-basin is the largest sub-basin in the Danube River Basin, draining an area of 57,186 km². The Tisza is the longest tributary of the Danube at 966 km, and the second largest tributary by flow after the Sava River.

According to the EU Water Framework Directive, member states may supplement the River Basin Management Plan by producing more detailed programmes and management plans for sub-basins. The Tisza Group countries have made the decision to establish a Tisza River Sub-basin initiative, to work together in the framework of the ICPDR to produce a sub-basin level Tisza River Basin Management Plan by 2009, which will also integrate issues on flood and water quality management.

Working together for sustainable development

At the first Ministerial Meeting of the ICPDR in December 2004, ministers and high-level representatives of the five Tisza countries signed the Memorandum of Understanding, an effort towards a river basin management plan for the Tisza River Sub-basin which would support sustainable development of the region. The ICPDR established the Tisza Group for coordination as well as implementation of this plan.

The Tisza Group consist of representatives nominated by the five Tisza River Basin countries – Hungary, Serbia, Slovakia, Romania and Ukraine – as well as a representative from the EU and from the River Basin Management Expert Group. The Tisza Group also includes additional experts from organisations involved in Tisza-related activities, such as UNDP, UNEP, WWF and REC. Representatives from other organisations may become accredited observers to the group through the procedures of the ICPDR relating to observer status.

Since the establishment of the Tisza Group, several meetings have been organised to achieve the first main objective – to prepare the Tisza Analysis Report, which will be presented at the Sixth Ministerial Meeting ‘Environment for Europe’ in Belgrade in October 2007. To prepare this Tisza Analysis Report, the Tisza Group is now supported by the European Commission – EU Grant.



The Sava River Sub-basin

The Sava River is the biggest Danube tributary by volume (25%). It runs 946 km from west to east beginning in Slovenia near the Italian border and ending at its confluence with the Danube in Belgrade. The catchment area is 95,020 km², which is some 12% of the Danube Basin. The Sava River Basin is shared by Slovenia, Croatia, Bosnia and Herzegovina, Serbia and Montenegro – which is not yet a contracting party of the Danube River Protection Convention.

The Framework Agreement on the Sava River Basin (FASRB) and the Protocol on the Navigation Regime, both signed in 2002, promote regional cooperation throughout the Sava River Basin on issues related to navigation, economic development, integrated water management and environmental protection.

Under the FASRB, the Sava Basin states have agreed to cooperate in the integrated management of surface and ground water resources, including a sufficient quantity and quality of water to protect, preserve and improve aquatic systems, and to protect against the harmful effects of floods. Considerable emphasis in the agreement relates to maintaining and improving navigation, and to providing financing for the construction of new, navigable waterways.

Establishing cooperation

The International Sava River Basin Commission was established in June 2005 and opened its Secretariat in Zagreb, Croatia, in January 2006. The aims of the Sava Commission are to fully implement the Agreement, to facilitate opportunities for economic development and to enhance relations and cooperation between the parties. One of the Commission's main tasks is to develop the Sava River Basin Management Plan in line with the WFD.

Planning for the future

The River Basin Management Expert Group of the Sava Commission is focused on developing the Sava River Basin Analysis, which should be finalised by the end of 2007. Input from the ICPDR is very well received in the Sava Commission, and is seen as guidance for development of the Sava Analysis Report. The ICPDR strongly supports the sub-basin activities and the first step towards the Sava River Basin Management Plan – the development of the Sava Basin Analysis.

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4. Keeping the Danube clean: pollution control strategies and the EU Water Framework Directive

Reducing pollution is a practical concern. After all, what most people, governments and communities want for their rivers, ecosystems and regions is good water quality, clean rivers and a healthy environment. Meeting those goals is one of the ICPDR's challenges.

Full integration of EU policies into the national and basin-wide pollution control strategies is a long-term challenge of the ICPDR. In the short term, the ICPDR is proposing a gradual approach based on key priority objectives of the EU Water Framework Directive (WFD).

In response to the WFD requirements, a new system to collect and calculate emission data for the whole Danube River Basin has been designed. This system has begun to be implemented in line with EU regulations and is bridging the efforts of the non-EU countries in the basin that will use the European Data Collection Systems and Methodologies.

The ICPDR pollution control strategy

The ICPDR's water pollution abatement activities continue to focus on the effective coordination of approaches to regional problems. The ICPDR has undertaken one stage of the characterisation involving the assessment of pressures on the water bodies, including point and diffuse sources of pollution. This assessment allows for the identification of water bodies which are at risk of failing to meet relevant WFD objectives. The following pressure categories have been considered in initial characterisation for their impact on water bodies:

- Organic pollution (point and diffuse sources of pollution)
- Hazardous substances
- Nutrient pollution
- Hydromorphological alterations.

The results of the Danube Basin Analysis 2004 (Roof Report) provide further information about the pressures, impacts and economic aspects of water uses. This is necessary to develop measures and compare their effectiveness to support the achievement of WFD objectives. Detailed information on pressures and impacts is needed by 2007 to justify designating water bodies as heavily modified or artificial, and for exemptions from the directive's objectives.

A comparison of the significant point source emissions assessed for the Roof Report illustrates that only a few point sources are responsible for about half the point discharges into the Danube River system. Reduction of emissions (organic substances and nutrients) from these sources would therefore lead to a remarkable reduction of the total point source pollution.

In order to reach WFD objectives and to tackle the pressures resulting from diffuse sources, the pollution control strategy of the ICPDR aims to combine current implementation processes in both policy fields – the Common Agricultural Policy reform and the WFD.

Taking action to control pollution

There has been a high level of transposition of the EU directives into the national legislations of the accession Danube countries. The Urban Wastewater Treatment Directive (UWWTD) and Integrated Pollution Prevention and Control Directive (IPPC) are considered the most challenging areas for compliance. This is reflected in the long transition periods for the UWWTD (such as 2010 for the Czech Republic, 2015 for Slovenia and 2018 for Romania) or the IPPC (such as 2012 for the Czech Republic and 2011 for Slovenia).

Throughout the basin, planning and construction is under way to provide water pollution control and abatement from municipal and industrial wastewater discharges into Danube Basin waters.

Implementing the Urban Wastewater Treatment Directive

The risk assessment for organic pollution was based on a combined evaluation approach considering both significant pressures and in-stream quality data. A water body is classified as being 'at risk' if it is subject to a significant pressure from municipal, industrial or agricultural point sources by exceeding the limit values for organic pollution as defined by the agreed criteria at the basin-wide level.

The discharge of partially treated or untreated wastewater from urban areas is especially significant and does not meet the requirements of relevant EU legislation, in particular the UWWTD and the IPPC. In 2005, the COD and BOD discharges from significant point sources (municipal, industrial and agricultural) were 741,069 tonnes and 281,132 tonnes, respectively.

The Saprobic Index using benthic invertebrates was used from the point of view of the impact of organic pollution. The critical thresholds were defined at the basin-wide level for the 'at risk' category.

The evaluations of the risk analysis for the Danube are based on the length of the water bodies that have been identified. Data on the risk assessment is available for the total length of the Danube. Based on the assessment, the percentages of river length were calculated as being 'at risk', 'possibly at risk' and 'not at risk'. In total, 58% of the Danube is 'at risk' or 'possibly at risk' due to organic pollution. Also, 43% of the Danube's tributaries (with catchment >4,000 km²) is 'at risk' or 'possibly at risk' due to organic pollution.

The Pressures and Measures Expert Group prepared methodologies to improve the pressures analyses for municipal, agricultural and industrial sectors. The overall goal for the Danube countries is to make the best use of mandatory reporting requirements and time constraints given by the implementation of the WFD.

The report of the project 'Development of the Urban Wastewater Treatment in the Danube River Basin' (2006–2007) gives a comprehensive overview of development plans and cost estimates to implement the UWWTD for EU member states and accession countries, or the national development plans for urban wastewater treatment in the non-EU countries within the ICPDR and the anticipated impacts of these measures in terms of nutrient and organic pollution loads for 2006–2015.

The contamination of groundwater and rivers by untreated wastewater is one of the core problems in the Danube River Basin. The long-term effects of such pollution reduce biodiversity in aquatic ecosystems, and affect human water uses, such as drinking water sources.



The European Pollutant Release and Transfer Register in the Danube Basin

Member states are obligated to promote awareness of the European Pollutant Release and Transfer Register (E-PRTR) and to take appropriate measures to access the E-PRTR information.

The 'Development of the E-PRTR for the Danube River Basin' proposal promotes the development and implementation of integrated national pollutants registers (PRTRs) within the EU accession and non-EU countries of the ICPDR.

To ensure reporting under the E-PRTR, the ICPDR will launch a broad Danube Basin consultation on the current status and possible developments in areas of environment policy which address impacts of large point and diffuse sources on the environment. The ICPDR is interested in the views of all stakeholders and encourages them to play an active role in the debate on implementation issues as well as future developments.

It is therefore important that a clear understanding of the benefits of reducing pollutant levels exists in Danube countries. The stakeholders must be prepared – on either an individual installation or sectoral basis – to recognise that the economic and social costs of some forms of pollution prevention or control may not be justified by the benefits in the short or longer term. Further, dissemination of good practice may also provide help to any Danube country that needs it.

The ICPDR is committed to facilitating public access to information relevant for Danube River Basin countries. Through its DANUBIS information system, the ICPDR provides access to information on legislation, water pollution and water quality, data bases, funding opportunities and policies at the EU, basin-wide and regional and national levels.

Project results will be a major contribution to data availability and reliability of the ICPDR emission inventories and to the baseline scenario of the Danube River Basin Management Plan, as improvement of industrial wastewater treatment will account for a significant part of the resources spent on water management in the next years.

Decision support for River Basin management plans

The update of MONERIS will provide a management tool for the ICPDR in the decision-making process based on the comparison of the effects of various measures implemented in different sectors, countries and regions in the Danube River Basin. Considering the WFD timeframe, a fully operational system is required at the drafting stage of the river basin management plan as well as the identification of the programme of measures by the end of 2007. The goal is to determine if the implemented measures or packages of measures meet WFD and Danube River Protection Convention targets in one specific sub-basin or the whole catchment. This will support the ICPDR in giving policy advice to governments on the need to invest in nutrient reduction projects, or implement specific measures in response to EU directives.

The system will allow for the calculation of scenarios for possible changes of nutrient loads within the Danube River Basin and to the Black Sea according to sets of measures proposed by the ICPDR. There are many areas that may benefit from the update of MONERIS, including pollution prevention and control, river basin management, design for priority investments and reporting.

Nutrient pollution

Reducing nutrient pollution is especially important for the ICPDR given the expanded interest in reducing downstream eutrophication problems in the Black Sea. Furthermore, nutrient reduction activities would benefit all Danube managers including the European Commission, the ICPDR and Danube countries since nutrient pollution was one of the four key issues identified as putting Danube countries at risk of not being able to meet WFD requirements. Countries were also obliged to reduce their nutrient loads to meet other EU directives including the UWWTD and the Nitrates Directive.

Other key ICPDR targets include introducing best agricultural practices, conserving wetlands, improving the financial operations of water and wastewater utilities, reducing phosphate use in laundry detergents, improving public awareness and strengthening public participation.

Joint action produces key results

The achievements of the Joint Action Program (JAP) show there has been substantial legislative reform – in particular the implementation of EU community law within the Danube River Basin. The WFD has strengthened efforts to coordinate actions supporting integrated river basin management and pollution control and reduction. Still, the key challenge some Danube countries face in the policy field is to identify the most effective ways of transposing EU environmental directives. Choosing how to achieve compliance with EU directives will have a significant influence on compliance costs for countries.

Throughout the basin, planning and construction is under way to provide water pollution control and abatement from municipal and industrial wastewater discharges into Danube Basin waters. Regulatory demands regarding implementation of tertiary treatment are variable among countries, depending primarily on how the sensitivity of surface water resources has been classified in national legislation. The majority of the projects have tertiary treatment technology, as a result of legislative transposition during the EU accession period. Nitrogen removal is more prevalent than phosphorus removal among municipal projects. However, all projects completed by 2003 do have tertiary treatment technology.

The municipal projects in Danube Basin countries, excluding Germany and Austria, serve an estimated 22 million inhabitants.

The ICPDR's JAP, with support from DABLAS (Danube-Black Sea Task Force), prepared a prioritised list of investments for nutrient pollution reduction. The estimated total costs of these projects were in excess of 4,000 million USD with expected reductions of nitrogen emissions by 50 kilotonnes/year (kt/a) and of phosphorus emissions by 9 kt/a. Total emissions to the Danube Basin prior to the projects were estimated at 700 kt/a for nitrogen and 70 kt/a for phosphorus, with the measured loads to the Black Sea estimated at 400 kt/a for nitrogen and 12 kt/a for phosphorus.

The JAP will be 'transformed' under the WFD to become part of the programme of measures of the Danube River Basin Management Plan.

The municipal projects in Danube Basin countries, excluding Germany and Austria, serve an estimated 22 million inhabitants. A considerable amount of pollution reduction has been and will be realised through the implementation of the 224 municipal wastewater projects. Annual reductions are estimated at more than 290,000 tons of BOD, nearly 45,000 tons of total nitrogen, and approximately 18,000 tons of total phosphorus.

Overview of total projects

TABLE 2

| | No. of projects | Combined no. of inhabitants | Combined PE of WWTPs | Pollution reduction [t/a] | | |
|----------------|-----------------|-----------------------------|----------------------|---------------------------|--------|--------|
| | | | | BOD | N | Pr |
| Total Projects | 224 | 21,845,158 | 32,534,026 | 291,082 | 44,685 | 17,887 |

//// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Srbija //// Crna Gora //// România //// България ////

Securing project funding

International financing has been instrumental to the development of the municipal wastewater sector in the Danube River Basin. EU grant financing has played a large role in the funding of several projects throughout the EU countries and the EBRD (European Bank for Rural Development) and EIB (European Investment Bank) have

extended loans to municipalities for many of these projects, to help cover co-financing requirements. The World Bank-GEF Investment Fund has also participated in municipal wastewater projects, in addition to agricultural reform and other nutrient reduction efforts in the basin.

Sources of funding

TABLE 3

| Country | No. of projects | Total cost [MEUR] | Source of funding [%] | | | | | | | | |
|------------------------|-----------------|-------------------|-----------------------|------|-----|------|-----|-----|-----------|---------|------|
| | | | National | EBRD | EIB | EU | GEF | WB | Other IFI | Missing | |
| Bosnia and Herzegovina | 8 | 254.1 | 3.5 | 2 | | | | | 15.6 | | 78.9 |
| Bulgaria | 33 | 325.5 | 21.1 | 1.8 | 2.7 | 70.7 | | | | 0.3 | 3.4 |
| Croatia | 16 | 527 | 35.6 | 12.3 | | 12 | 1.3 | | | 21.8 | 16.9 |
| Czech Republic | 35 | 215.8 | 50.1 | 22.5 | 9.6 | 7.3 | | | | | 10.6 |
| Hungary | 17 | 1,061.4 | 28 | | 8.9 | 62.4 | | 0.7 | | | 0 |
| Moldova | 15 | 38 | 1.6 | | 1.1 | 0.8 | | 1.1 | 94.1 | | 1.3 |
| Republic of Serbia | 8 | 605 | 31 | 0.8 | 1 | 4 | | | | | 63.9 |
| Romania | 25 | 782.1 | 19 | 11.7 | 1.5 | 67.4 | | | | | 0.3 |
| Slovak Republic | 20 | 294.9 | 44.6 | | | 28.8 | | | | 0.8 | 25.8 |
| Slovenia | 34 | 390.7 | 44.3 | 3.6 | | 45 | | 0.4 | | | 6.7 |
| Ukraine | 13 | 50.1 | 26.4 | | | | | | | | 73.6 |
| Total | 224 | 4,544.6 | | | | | | | | | |

Of the 224 projects, 86 are fullyfinanced and have either been completed or are being implemented. The combined investment cost of the 84 fully financed projects is approximately € 2,268 million, representing approximately 50% of the total.

The majority of the fullyfinanced projects are located in the four countries that joined the EU in 2004: the Czech Republic, Hungary, Slovakia and Slovenia. A large proportion of project financing for these investments came from local and national sources. Romania, part of the EU since January 2007, also has a number of fullyfinanced projects; significant achievements have been made there in the wastewater sector since the last DABLAS update in 2004. Bulgaria and Croatia have also progressed, but mostly with project preparation.

Among the partiallyfinanced projects, the portion of local and national co-financing is lower than for fullyfinanced projects. This indicates that these projects will require more grant financing than in the mid and upstream countries. Limited development in the wastewater sector has been achieved in the downstream, non-EU countries, including Bosnia and Herzegovina, the Republic of Serbia, Moldova and Ukraine.

Nutrient pollution and phosphates in laundry detergents

Recommendations are being provided to Danube national governments on the use of phosphates in household laundry detergents and how consumers and industry can switch to alternative phosphate-free products. Early studies have found detergent phosphates to be a major urban contributor to nutrient pollution, and that their removal would be the fastest and cheapest way to significantly reduce phosphorus currently released into the basin.



Phosphates are commonly used in domestic and industrial detergents to soften water and make washing more effective. However, they can also lead to excess nutrients in the river, reducing biodiversity through eutrophication.

////// Moldova //// Україна //// Deutschland //// Österreich //// Česká republika //// Slovensko //// Magyarország //// Slovenija //// Hrvatska ////

5. Warning downstream neighbours: the Danube Accident Emergency Warning System

To respond to a pollution accident, downstream users need critical information to put environmental protection and public safety measures into action – and they need it fast.

In 2006, the Danube Accident and Emergency Warning System (AEWS) was activated for eight accidents. An overview of the events is given below:

TABLE 4

| Site & date of accident | Affected river | Primary pollutant | | Routing of international messages |
|------------------------------------|----------------------------|-------------------|--|--|
| Petronell 14.01.2006 | Danube, rkm 1891 to 1889 | Mineral oil | PIAC-02 ► PIAC-04, PIAC-05 | 'Warning-Pollution' |
| Danube upstream Melk 03.03.2006 | Danube, rkm 2072 to 2042 | Mineral oil | PIAC-02 ► PIAC-04, PIAC-05 | 'Warning-Pollution' |
| Smederevo 03.04.2006 | Danube, rkm 1112.2 to 1112 | Mineral oil | PIAC-13 ► PIAC-08, PIAC-09 PIAC-13 ► PIAC-08, PIAC-09 | 'Standard Message' 'End of alert' |
| Jamena 17.06.2006 | Sava, rkm 196 to 176 | Atrazine | PIAC-13 ► PIAC-07, PIAC-14 PIAC-07 ► PIAC-13, PIAC-14 | 'Warning-Pollution' 'Standard Message' |
| Bratislava 28.06.2006 | Danube at Bratislava | Mineral oil | PIAC-04 ► PIAC-05 PIAC-04 ► PIAC-05 | 'Warning-Pollution' 'End of alert' |
| Prahovo 02.10.2006 | Danube, rkm 849 to 855 | Mineral oil | PIAC-08 ► PIAC-09 PIAC-08 ► PIAC-13 PIAC-08 ► PIAC-09, PIAC-10, PIAC-12 PIAC-08 ► PIAC-09, PIAC-10, PIAC-12, PIAC-13 ICPDR/PS ► PIAC-08, PIAC-09, PIAC-12, PIAC-13 | 'Standard Message' 'Request for Information' 'Standard Message' 'End of alert' 'Request for Information' |
| Bulgarian Danube 07.12.2006 | Danube, rkm 824 to 817 | Mineral oil | ICPDR/PS ► PIAC-09, PIAC-13, PIAC-08 PIAC-08 ► ICPDR/PS PIAC-09 ► ICPDR/PS, PIAC-08, PIAC-13 | 'Request for Information' 'End of alert' 'Warning-Pollution' |
| Bulgarian Danube 22.12.2006 | Danube, rkm 790 | Mineral oil | PIAC-09 ► PIAC-08 | 'Warning-Pollution' |

The overview table (table 4) shows that mineral oil was the most common polluting substance released by accidents. Navigation was the major cause of these accidental spills, although leaks from on-shore installations occur as well.

Ensuring efficient round-the-clock performance

A test of AEWS, organised in November 2006, as well as the performance of the warning system during the accidents, showed that from the technical point of view, the internet-based system is performing well and is fully capable of distributing warning messages in time and according to the operational manual.

One issue which still requires attention is ensuring the preparedness of the staff of the principal international alert centres to trigger the system promptly at the national level. The lessons learned from the oil spills on the lower Danube from October to December 2006 show the necessity of having sustainable emergency procedures in place in the Danube countries to ensure timely and concerted actions of all stakeholders at the national level (river authorities, river inspectorates, civil protection, police, fire brigades, etc.) to respond to accidental water pollution. These procedures must include the timely activation of AEWS.

6. Guarding against high waters: flood protection in the Danube River Basin

Winter 2005/2006 was exceptional: temperatures were below average from November to March over large areas in Europe. In the Danube region, several cycles of intense snowfall accumulated large water supplies in the snow cover during winter. Consequently, the melting and fast runoff was due to relatively high daily air temperatures and intensive rainfall. This led to increasing river water stages and caused several significant floods in the third week of March and the first week of April.

The flood situation on the upper Danube was not critical in 2006. The Hydrological Service of the Slovak Hydrometeorological Institute evaluated the discharges at approximately a 10 years' return period at the Devín and Medveďov stations, and an average return period of less than 50 years at the Komárno and Štúrovo stations.

An exception was observed in the Morava River Basin, where peak discharges were reached. From March 3 to April 1 and discharges in some profiles reached values with a return period of 100–200 years. The Dyje and Morava River catchments were struck simultaneously by floods – a first in the 80 years' history of discharge monitoring. Flood discharges in Hungary (Nagyymaros: 9,000 m³/s; Budapest: 8,800 m³/s) indicated that this flood was in the range of an 80–100 years' return period.

Effective defence measures

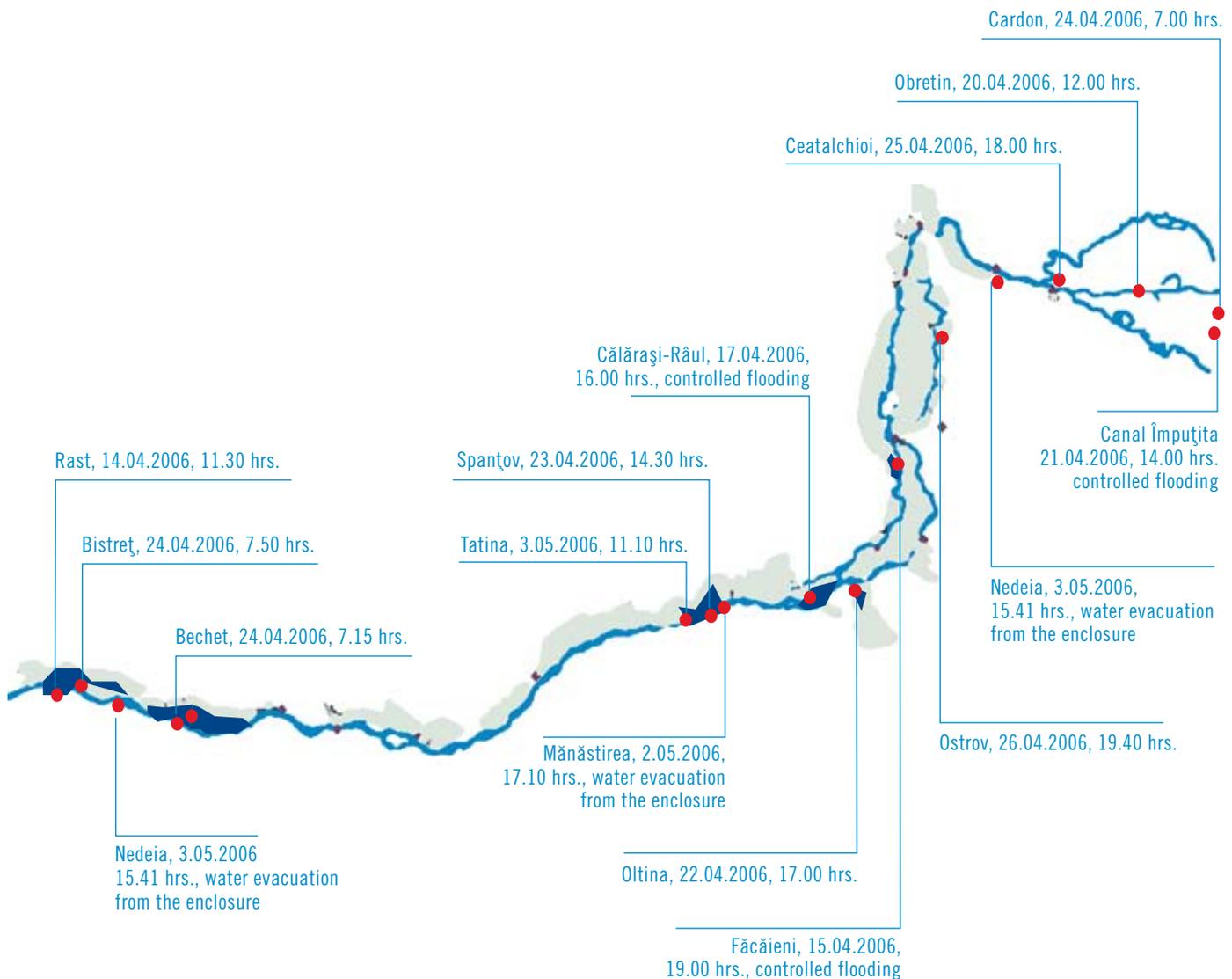
In Serbia floods threatened the entire region along the Danube and the Tisza, but as a result of the emergency flood defence measures that were implemented, there were no levee overtopping or breaches. Extremely high groundwater levels throughout the spring period occurred in protected areas.

All levees along the Danube and the Tisza which were reconstructed during the last 30 to 40 years in compliance with national technical criteria were able to withstand long-lasting high water levels. Only the unprotected areas were flooded (between levees, or very short stretches without levees), and the damage identified below relates to these areas. Residents were evacuated from these areas, as well as from other areas where the safety of defences was assessed as insufficient, such as the Ada Ciganlija recreation centre in Belgrade.

Reinforcing protection

The most challenging situations existed in towns along the Danube River (Novi Sad, Belgrade, Smederevo, Veliko Gradište and Golubac), where flood protection structures have insufficient freeboard above the flood level, due to urban planning criteria. With major efforts made by organisations responsible for flood defence, citizens and the Army, temporary dikes made of sandbags were erected in these cities and towns on top of existing structures. Additionally, great efforts were made to increase the height of non-reconstructed levees along the lower course of the Tisza, where water levels were influenced by the Danube backwater. Secondary levee lines were built along the Tisza to protect populated areas in the event of a main levee flooding or breach.

In Romania water levels induced the failure of longitudinal dikes at the Ghidici-Rast-Bistret, Bechet-Dabuleni, Oltenita-Surlari-Dorobantu, Oltina, Ostrov-Pecineaga and Ciulinet-Isaccea enclosures.



The large volume of stored water in the Ghidici-Rast-Bistret enclosure was followed by a partition dike failure to the Bistret-Nedeia-Jiu enclosure and stored water volume in the Bechet-Dabuleni enclosure conducted to a partition dike failure to the Potelu-Corabia enclosure. In Oltenita-Surlari-Dorobantu two existing partition dikes were damaged.

Considering that dikes were under enormous pressure for almost two months, the opportunity was taken to analyse controlled breaches. Two areas were flooded in a controlled manner through controlled breaches (dynamiting dikes): in Calarasi county: Calarasi-Raul 10,748 ha and in Ialomita county: Facaieni-Vladeni 4859 ha.

Estimating damage and losses

Germany – Bavaria

There were no victims, and larger damage to settlement areas and infrastructure was prevented by flood control measures.

The Czech Republic

Three people lost their lives during the flood in the Morava River Basin.

Flood damage in the Morava River Basin was estimated at €70 million and heavy damage to agricultural land due to flooding also occurred with 16,000 hectares of agricultural land underwater.

Slovakia

The floods in Slovakia caused almost 2.8 billion SKK (approximately €74 million) worth of damage. The costs for safeguarding and safety works were estimated to be 376 million SKK (€9.9 million), and approximately 2424 billion SKK (€ 64.1 million) for repairing damage to property of state, municipalities, inhabitants, etc. 512 municipalities were directly affected by floods, 915 people were evacuated, 1 human life was lost.

The Danube River Basin struggled to cope with devastating floods that swept through the region this year, ravaging communities and causing millions of euros in damages.



Hungary

There were no flood victims. According to the post-flood assessment, damage and losses occurred in the floodway and in the open floodplain on 385 properties upstream from Budapest, without exception. Nearly 30% of the damage was registered in Szentendre, Nagymaros and Visegrád. The cost of repairing damage to private property was HUF 192 million (approximately €770,000), and the cost of repairing damage to the properties of municipalities, including public roads damaged by heavy traffic due to emergency operation and damaged facilities like ports and ferries was HUF 595 million (approximately €2.3 million). Restoration costs are of course higher, totalling HUF 861 million (approximately €3.5 million).

In Budapest, 39 public properties (buildings roads and defence structures) and 51 private properties were damaged, costing nearly HUF 100 million (approximately €400,000) in repairs. Hydrometeorological conditions of 2006 justified a different level of alert along different river stretches, and a summary of the costs of emergency operations is given below for different periods.



TABLE 5

| Nomination | Valley | 1 Jan – 3 Apr 2006 prior to extraordinary alert | 4 – 10 Apr 2006 during extraordinary alert | 11 Apr – 30 June 2006 after extraordinary alert | Total [Mil HUF] | Total [Mil €] |
|--|---------------|--|---|--|-----------------|---------------|
| Flood emergency | Danube Valley | 389.0 | 1,011.0 | 629.0 | 2,029.0 | 8.07 |
| Recovery of the capacity of the defences during flood fighting | Danube Valley | | | 569.2 | 569.2 | |
| Total | | | | | 2,598.2 | 10.3 |

TABLE 6

| Nomination | Valley | 1 Jan – 14 Apr 2006 prior to extraordinary alert | 15 Apr – 9 May 2006 during extraordinary alert | 10 May – 15 July 2006 after extraordinary alert | Total [Mil HUF] | Total [Mil €] |
|-----------------|--------------|---|---|--|-----------------|---------------|
| Flood emergency | Tisza Valley | 3,263 | 10,279 | 4,427 | 17,969 | 71.5 |

The costs of emergency operations along the Tisza and its tributaries include the immediate recovery interventions ordered to secure the stability of the flood defences.



Swollen rivers and rising ground-water levels caused widespread damage and forced thousands to leave their homes.

Serbia

In 2006, 240,000 hectares of agricultural land within Serbia was flooded, approximately half by rivers and half by groundwater. During April and May 2006, 2000 houses in 30 communities within unprotected areas were flooded. Civil Defence forces evacuated about 1000 residents and there were no flood victims.

Water management companies reported flood defence costs of approximately €10 million. The cost of repairing preliminary damage was estimated at roughly €40 million.

Romania

In total, 681 dwellings and 487 bridges and footbridges were destroyed, and 2598 dwellings were affected. There were no human losses during the flooding. The estimated total cost for repairing damage in Romania amounted to approximately to €200 million.

TABLE 7

| County | Affected constructions | | | Railroads and roads | | | Bridges and footbridges [no.] | Other constructions [no.] |
|---------------|---------------------------|--------------------------|--------------------|---------------------|-----------------|--|-------------------------------|---------------------------|
| | Destroyed dwellings [no.] | Affected dwellings [no.] | Dependencies [no.] | Wells [no.] | Railroads [km.] | Local, county and national roads [km.] | | |
| Teleorman | 9 | 28 | - | 27 | - | - | 1 | 5 |
| Olt | 3 | 5 | 87 | - | - | 4 | 11 | 4 |
| Călărași | 312 | 792 | 934 | 866 | - | 1 | 4 | 4 |
| Giurgiu | - | 8 | 3 | - | - | 0,2 | - | 2 |
| Galați | - | - | - | - | - | - | - | 1 |
| Constanța | 7 | 141 | 145 | 3 | 0.5 | 3 | 4 | 1 |
| Brăila | - | 11 | - | - | - | - | - | - |
| Ialomița | 2 | 2 | 8 | - | - | 2 | 1 | - |
| Tulcea | 144 | 101 | - | - | - | - | - | - |
| Dolj | 372 | 919 | 596 | 2,133 | 21.0 | 3 | 169 | 48 |
| Mehedinți | 29 | 79 | - | 70 | - | 2 | 134 | - |
| Caraș Severin | 3 | 442 | 990 | 782 | 2.4 | 6 | 163 | 3 |
| Total | 681 | 2,598 | 2,763 | 3,881 | 23.9 | 22 | 487 | 67 |



// България // Молдова // Україна // Deutschland // Österreich // Česká republika //

Opportunities for learning

Germany – Bavaria

In the German Danube catchment the flood events during March and April 2006 brought about water levels that required only local measures for flood control. The Bavarian flood protection strategy with its components of ‘natural retention’, ‘technical flood protection’ and ‘flood precaution’ – also a part of the ICPDR’s Flood Action Programme – proved to be effective.

Slovakia

The floods emphasised the need for:

- Appropriate technical measures in localities for intense seepage in the bodies and backgrounds of dikes, such as seals, underground walls and seepage canals
- Revisions and repairs to several pumping stations
- Improvement of the quality of the grass slopes of the dikes
- Removal of scrubs from channel banks and flood plains
- Revision of current flood plans incorporating new experiences from the floods.

The heavy floods that inundated Central and Eastern Europe this spring underlined the urgent need for all countries in the Danube River Basin to work together to protect against floods.

Hungary

Thanks to successful emergency operations, the extreme floods of the Danube and Tisza rivers passed without disaster. Success was achieved through the experience that the participating organisations and their staff gained during previous floods.

In detail:

- forecast and warning:
 - Indispensable prerequisites of successful flood mitigation are accurate information and forecasting and proper evaluation of the situation.
 - The application of LISFLOOD in a number of cases could prolong the lead time of warnings on tributaries.
 - Better utilisation of the possibilities of hydrodynamic modelling is needed, and forecasts should be based on consideration of the results of different methods.
- land use:
 - Building permission processes must better consider the advice of water directorates to reduce damage potential in flood prone areas.
 - It is necessary to introduce the classification of land according to the danger of inundation and the connecting limitations in the detailed physical plans and land registers.
- development of the flood defence system:
 - Flood mitigation experiences again justified that natural and financial expenditures on emergency operations are substantially lower along defence sections meeting the standards. This is why it is imperative to make every effort to develop defence structures to meet standards.
 - However, based on flood emergency experiences, revisions and updates of the long-term development plan of flood defence system must be made, with special regard to prioritising and solutions. Special attention has to be paid to the development of the defences of municipalities, with emphasis on those of Budapest, and to the reconsideration of summer dikes.

Croatia

It was noticed that a lot of problems were caused not by high water levels, but by the long duration of the flood. There were a significant number of seepage incidents, through and under the dikes. Fortunately, all problems of this type were solved in a very short time and without further consequences. This, however, highlights the importance of the detailed control of existing dikes, and the reconsideration of the design standards for new ones. Additionally, careful monitoring of dikes during floods proved to be vital for successful flood defence.

Serbia

The 2006 flood defence action revealed a number of general and operational deficiencies. Existing regulations, guidelines and practices need to be amended as follows:

- A comprehensive natural disaster strategy (including floods) should be enacted at the national level and should resolve civil defence issues.
- Flood defence structures should have the highest priority in the Program for Water Infrastructure Construction, Reconstruction and Maintenance. Adequate funding must be provided and construction and reconstruction projects must be executed to upgrade defence lines along the Danube and the Tisza.
- Hydrologic monitoring, forecast and warning systems should be enhanced. A high level of connection between Hydrometeorological Station Serbia and the Danube River Basin system is needed.
- Flood zoning should be completed as set forth in the Danube River Basin Flood Action Plan.

Romania

The information flow and the action mode in operative centres emphasised better coordination, removing difficulties from 2005 floods. The measures taken last year from a legislative and technical point of view induced real coherence and an early response to threats.

However there were some difficulties, organisationally and legislatively, regarding maintenance of hydraulic structures and updating documentation.

To improve the adequate response to manage emergency situations, the following is needed:

- Intervention equipment and tools specific to each risk type
- The elaboration of a concept for integrated preparation of all decision makers in this kind of risk
- The organisation of volunteer services for emergency situations;
- Training courses for public administration and for members of operative centres for emergency situations
- An increase in the number of exercises, both decision-information flow and intervention
- Integrated medical care units set up in all county inspectorates for emergency situations
- The realisation of risk studies with risk scenarios behind dikes in the areas with high density of population
- The improvement of international cooperation inside the Danube Basin (especially with the Serbian part) to improve forecasting and decisions concerning the management of hydraulic structures
- The future solution for Danube's floodplain rehabilitation should be taken into account for the new National Strategy for Flood Risk (approved in December 2005) based on the new European Principles included in the future Flood Directive in the course of approval referring to people and goods protection through the realisation of structural defence works such as reservoirs, polders, dikes and high water derivation, wetland restoration for preserving and development biodiversity and peak flow mitigation.

Moldova

For a more successful and safer management of spring floods, a deeper spring depletion of the water catching reservoirs is needed. An annual inspection of the state dike banks is required and their appropriate elevation level must be ensured.

The Danube Early Flood Alert System

Despite some drawbacks of the current system (coarse calibration and coarse resolution input data), the snowmelt floods of 2006 were a great success for the Early Flood Alert System (EFAS), operationally. In total, more than 50 reports were sent to partner organisations, and the start of the floods (particularly the start of the Elbe and Danube floods in the Czech Republic) were very well forecasted several days in advance. In Slovakia the EFAS reports were used operationally and brought added value to the flood forecasts.

One element of the ICPDR's Flood Action Programme is the development of a new international flood warning system, overseen by the ICPDR, which supplements national systems and gives up to 10 days' warning of expected floods.



7. Minimising risks: the Accident Prevention Task Group

The activities of the Accident Prevention Task Group in 2006 were based on the assessment of contaminated sites and follow-up to the ICPDR resolutions regarding the status of country reports on accidental risk sites, as well as on the idea of transboundary assistance in case of large accidental pollution and the contingency planning in connection with mutual assistance.

Assessing contaminated sites

The UNDP/GEF Danube Regional Project (DRP) supported the Task Group in developing a methodology to assess contaminated sites. The existing inventory of contaminated sites susceptible to flooding – with both former industrial sites and former waste deposits – is considered a ‘Working List’. The updated inventories may provide a clear picture of the potential risk sites as well as possible targets to reduce and control accidental pollution.

Checking technical safety

The DRP consultants prepared recommendations for in-plant pipeline safety, sealing systems, fire prevention, storage facilities and equipments of tanks. The Recommendation for Refineries checklist is available, which also covers requirements for wastewater treatment plants. The Task Group will prepare a concept for implementing the risk assessment methodology and checklist at the national level.

An important component of the Task Group’s work is to develop the methodology for the ‘Quantification of real risk’ to determine the potential danger, calculate the modified Water Risk Index and assess treatment plants.

Mutual assistance and contingency planning

The Programmes and Measures Expert Group and the Accident Prevention Task Group are preparing a proposal to assess the capacity for ensuring necessary assistance is given to affected countries in the event of accidental pollution by elaborating procedures for mutual assistance, on the basis of EU and ECE legislation and bilateral agreements.

The Accident Prevention Task Group will more precisely assess existing mechanisms and their features for mutual assistance as well as for contingency planning. Recommendations for the introduction of specific ICPDR mechanisms for mutual assistance and for contingency planning will be developed on the basis of these findings.

The updated inventories of contaminated sites may provide a clear picture of the potential risk sites as well as possible targets to reduce and control accidental pollution.

8. The flow of information: ICPDR information systems and public participation

Providing access to information arms stakeholders with the knowledge they need to make a difference in the Danube River Basin.

After a thorough design phase, the new ICPDR website, www.icpdr.org, was launched on 27 March 2006. Within nine months, more than 30,000 people visited the website – an average of 1,300 visits per week (see fig.6). The total number of page views was over half a million.

The website targets interest groups, decision makers, journalists, scientists and the general public. To accommodate this diverse range of people and backgrounds, all pages provide a progression in depth of knowledge: a very short introduction is followed by a more detailed, but still easy-to-read text. Further information is provided as in-depth documents in PDF format for download, as well as links to related content and other websites. Four main sections group the content geographically, by issue, by sector – and the fourth section provides the solutions: the ICPDR, projects, programmes, publications and events. The visual design supports this clear structure while conveying the vision of an intact environment in the Danube River Basin.

Keeping users up-to-date

The home page always provides access to the latest news and most important topics. Additional useful features are available: users can adjust the font size to their own needs, recommend a page to a friend by email and search the site by keywords. The website will be continually updated to provide links to all publications of the ICPDR and related projects.

The Danube Day website, www.danubeday.org, was also redesigned to better communicate this year's topic and put the country events into the centre of attention. The website had more than 12,000 visitors and 177,000 page views this year – 25% of them within the two months surrounding the Danube Day event.

Within nine months of its launch, more than 30,000 people visited the ICPDR website – an average of 1,300 visits per week.



The ICPDR homepage and the Danube Day website keep visitors up-to-date on news and events and provide access to documents and detailed information.

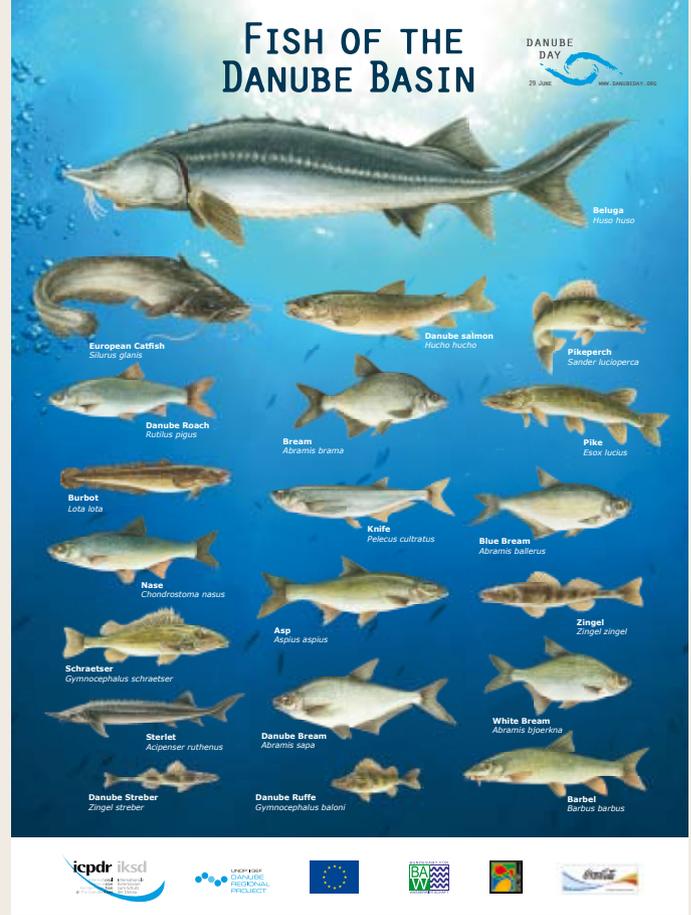
ICPDR publications

In 2006, four issues of *Danube Watch*, including a double issue, were published – 10,000 copies of *Danube Watch* were printed per issue and distributed for free. In addition, *Danube Watch* can be downloaded from the ICPDR website. External funding was received in 2006 from the UNDP/GEF Danube Regional Project for one issue and from the Federal Ministry of the Environment, Nature Conservation and Nuclear Safety of Germany for the double issue. The other issue was financed through the ICPDR budget.

Other publications were produced in 2006 highlighting the work of the ICPDR:

- The Danube River Basin Overview Map
- A poster featuring the fish of the Danube River Basin.

More than just a valuable source of nutrition for the human population, healthy numbers of fish serve as an important indicator of the biological quality of the river. To celebrate Danube Day, a special poster highlighted several of the fish that live in the basin.



ICPDR information system Danubis

The ICPDR information system Danubis, www.icpdr.org/danubis, continued to support the delegations and expert groups as an internal working area to share documents and other information related to their work.

Danubis also provides access to several databases: the Transnational Monitoring Network (TNMN) Database, the Emission Inventory Database and the DABLAS Investment Projects Database. The TNMN Database is updated yearly and currently contains water quality data from the years 1996–2004.

During 2006, 190 new users were registered to Danubis, increasing the total number of users to 670. Access to the databases is open to everyone upon registration.

Danube River Basin geographical information system

The prototype of the Danube River Basin geographical information system (DANUBE GIS) was launched in January 2006. The system was tested by the members of the Information Management and GIS Expert Group and further development steps were defined in more detail based on the System Definition from 2005. The Umweltbundesamt Wien/Vienna started with the implementation, which will be finished in June 2007. Since December 2006, the system has already been used to collect GIS data in common template formats that are filled out and uploaded by countries.

Number of weekly visits (at least one page view per person) to the ICPDR sites in 2006

FIG. 6



9. Inviting public participation

Participation by stakeholder groups is vital for the ICPDR, and from the beginning the ICPDR has worked to ensure that international stakeholders are actively involved in its working groups and delegation meetings. Securing the active participation of stakeholder groups is a cross-sectoral initiative and their involvement is encouraged in all Expert Groups, not just the Ad-hoc Public Participation Expert Group. Only the full involvement of interest groups can ensure the integrated management of the Danube River Basin.

While stakeholder participation takes place throughout the work of the ICPDR, the Ad-hoc Public Participation Expert Group focuses on the outreach programme of the ICPDR. The Ad-hoc Public Participation Group organises programmes like Danube Day and the Danube Box, and facilitates networking and information sharing between countries.

In 2006, the Ad-hoc Public Participation Expert Group launched a network of experts throughout the basin, and the Expert Group is currently working on:

- [Sharing public participation experiences regarding the EU Water Framework Directive \(WFD\) at the national level](#)
- [Linking different levels of implementation – local, national, sub-basin and international – for public involvement activities](#)
- [Developing joint activities for Danube Day](#)
- [Discussing and implementing joint outreach projects](#)
- [Ensuring the flow of information between ICPDR national experts.](#)

Broadening cooperation

The ICPDR has committed to cooperating more closely with the navigation sector on the Danube and its navigable tributaries. Working together is necessary to focus on the next steps to implement the WFD and develop the Danube River Basin Management Plan.

In 2006, two new organisations joined the ICPDR as observers, representing navigation interests: via donau and the European Barge Union.

via donau – Österreichische Wasserstraßen-Gesellschaft mbH

The organisation was founded in January 2005 by the Austrian Federal Ministry of Transport, Innovation and Technology for the preservation and development of the Danube waterway. The company was formed by the merger of Österreichische Donau-Betriebs AG, Österreichische Donau-Technik GmbH, via donau – Entwicklungsgesellschaft mbH für Telematik und Donauschifffahrt and the privatised Waterways Authority. Authority is held by via donau to operate waterways and execute sovereign functions on behalf of the federal authorities with regard to waterways and waterway transport. In addition to the tasks of federal waterway administration and transport development, via donau carries out pioneering work by planning and managing the Integrated River Engineering Project east of Vienna as well as operating a navigation information system called Danube River Information Services (DoRIS).

In cooperation with national and international partners, via donau implements projects designed to intensify waterway transport. Thus, the company contributes significantly to safeguarding business locations for Austrian companies as well as to the environmentally friendly management of future traffic volumes along the Danube corridor.

The European Barge Union

The European Barge Union (EBU) was founded in December 2001 to represent the inland navigation interests towards the European and international institutions.

The association has its seat in Brussels, Belgium and Rotterdam, Netherlands, and members of EBU are also based in Germany, Austria and the Czech Republic. The association represents the interests of inland navigation on a pan-European level and handles all questions of the future development of the inland navigation industry and inland waterway transport.

//// Magyarország //// Slovenija //// Hrvatska //// Bosna i Hercegovina //// Srbija //// Crna Gora //// România //// България ////

The ICPDR's public participation programmes link diverse communities of international stakeholders by actively involving them in ICPDR working groups and delegation meetings.



The EBU focuses on:

- The development of the European transport policy
- The improvement of the economic position of inland navigation
- The structured cooperation with national and international institutions
- The exchange of information and experience between the parties involved.

Only the full involvement of interest groups can ensure the integrated management of the Danube River Basin.

10. Shared river, shared responsibility: international and regional cooperation

With 81 million people sharing the Danube River Basin, it takes broad cooperation involving national and international institutions to ensure that the ecological and economic value of the river can be preserved for future generations. To achieve the goal of integrated river basin management, the ICPDR cooperates with regional and international agencies, non-governmental organisations and scientific and business communities.

The Danube Regional Project

The long-term objective of the Danube Regional Project (DRP), funded by UNDP and GEF, is to help countries reduce nutrient and toxic pollution in the Danube and its tributaries to permit Black Sea ecosystem recovery, and to strengthen transboundary cooperation among countries in the region. In anticipation of the project's end in 2007, many activities were finalised in 2006 following an exit strategy which defined the scope of the DRP support to the ICPDR until the end of the project and identified activities which need to be continued by the ICPDR, governments, institutions and other stakeholders to ensure the sustainability of the project results.

Implementing WFD requirements

In April, the ICPDR and DRP co-hosted the 'WFD and Agriculture' workshop in Malinska, Croatia, to identify tools to support the implementation of the WFD in the Danube River Basin, especially rural development measures available under the EU Common Agricultural Policy and to create better coordination between government water managers and agriculture managers in the basin. One key result was agreement on the need to implement a set of regulatory, financial and information and communications measures.

The DRP launched a new project to help Sava River Basin country governments – Croatia, Bosnia and Herzegovina, Serbia and Slovenia – develop their Sava River Basin Management Plan under the coordination of the new Sava River Basin Commission. This assistance will put the Sava countries into a pilot position in terms of WFD implementation in Europe.

Encouraging change

The DRP Small Grants Programme is the DRP's main vehicle for engaging local stakeholders. In early 2006, a total of 62 NGOs were awarded over \$636,000 to reduce nutrient and toxic pollution to Danube waters. This second round of grants was financed by the DRP via the Regional Environmental Center (REC). The NGO projects were launched in 11 Danube River Basin countries – Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Hungary, Moldova, Romania, Serbia, Slovakia, Slovenia and Ukraine. Examples of project goals include promoting best agricultural practices, environmentally-friendly detergents and wastewater cleaning systems for households.

Raising awareness about Danube issues and solutions through strategic communications and encouraging public participation in environmental decision-making have been key features of the DRP's activities. In a basin-wide 'Dissemination Workshop' held October 16–17, at the REC in Szentendre, Hungary, 50 participants from 13 Danube countries met to discuss tools and methodologies to improve public access to information about water quality and to share best practices, many of them developed through the DRP sub-project.

Introducing best practices

Eight farms were selected as demonstration sites for the DRP's Phase II project to reduce water pollution from agriculture. The farms, with pig and cattle production ranging in size from small and medium to large, are located in Vojvodina, Serbia and Montenegro. The farms are testing the application of newly introduced best agricultural practices, and results have been transferred to other Danube countries through national training workshops.

In late April, the report on recommendations for how Danube Basin governments can enact voluntary agreements to reduce the use of phosphates in detergents was presented to the ICPDR's Pressures and Measures Expert Group. Early studies found detergent phosphates to be a major urban contributor to nutrient pollution, and that the fastest and cheapest way to reduce the amount of phosphorus currently released into the basin would be to remove them.

Protecting and restoring wetlands

A DRP-funded campaign was launched by the NGO Daphne in Slovakia to raise awareness about the importance of wetlands in river basin management. The campaign is linked to a DRP project encouraging national water managers throughout the Danube Basin to better use wetlands in reducing water pollution, and to include such actions in their national plans for meeting the WFD. It also links to the International Wetlands Campaign of the Danube Environmental Forum, which includes Daphne as a member.

The sub-project Monitoring and Assessment of Nutrient Removal Capacities of Riverine Wetlands began with the establishment of a literature database with over 130 scientific reports and a project database with over 50 projects dealing with wetland restoration and/or nutrient removal in the Danube Basin. Three pilot sites in Moldova, Romania and Ukraine were also selected to develop and implement wetland restoration and nutrient retention programmes. These real world examples will highlight the importance of including nutrient removal into wetland management planning, to be incorporated into a final 'Guidance Document' in wetland restoration and management for wetland and river basin managers. A final meeting disseminating the DRP's overall efforts related to wetlands will be held in the Danube Delta in April 2007.

Looking to the future

The DRP will hold its final seminar on february 21–22, 2007, in Bucharest, Romania, to disseminate overall DRP results since the project began in 2001, discuss how they will be used by the ICPDR, and to get feedback and lessons learned from Danube countries and the ICPDR. Selected participants **will include** representatives from ICPDR delegations and expert groups, international organisations and NGOs.

The seminar will be followed by a high-level meeting of ministerial representatives from Danube and Black Sea countries where Environment Ministers from all of the 16 countries sharing the Danube River Basin and Black Sea region and the European Commission will adopt a new Declaration on the Enhancement of Cooperation. The Declaration will recognise the important values of the Danube/Black Sea region, the historical damage that it has undergone and recent signs of environmental recovery as a result of cooperative actions.

15 Years of Managing the Danube River Basin: 1991–2006:

A brochure celebrating the work of the DRP presents the key political decisions made related to building river basin management in the Danube Basin over 15 years and their results. The brochure highlights the lessons learned with the hope of transferring them to other river basins.

The Danube-Black Sea Joint Technical Working Group

In 2006, the ICPDR began evaluating the provision of data on ecological status and content of priority substances in sediments and biota in the Danube close to the Black Sea, and the ICPDR reports annually to the Black Sea Commission (BSC). The Joint Technical Working Group assesses the completeness and suitability of parameters provided and the extent and character of missing data.

For the Danube, the data on pollutant loads discharged to the Black Sea are based on the Transnational Monitoring Network (TNMN) station at Reni. The data on loads of suspended solids, inorganic nitrogen, phosphates, total phosphorus, BOD5, ammonium, nitrates, nitrites, total nitrogen, cadmium, copper, lead, mercury and silicates from 2005 on are taken from the TNMN load assessment programme.

Evidence of eutrophication in the Danube River Basin and Black Sea

The ICPDR and BSC discuss ways to strengthen efforts to present information on the influence of the northwest shelf of the Black Sea and the ecological status of the Black Sea. A technical report on the state of knowledge of the impact of the Danube on the Eutrophication of the northwest shelf of the Black Sea was prepared by the UNDP/GEF Danube Regional Project (DRP) and the Black Sea Ecosystem Recovery Project (BSERP).

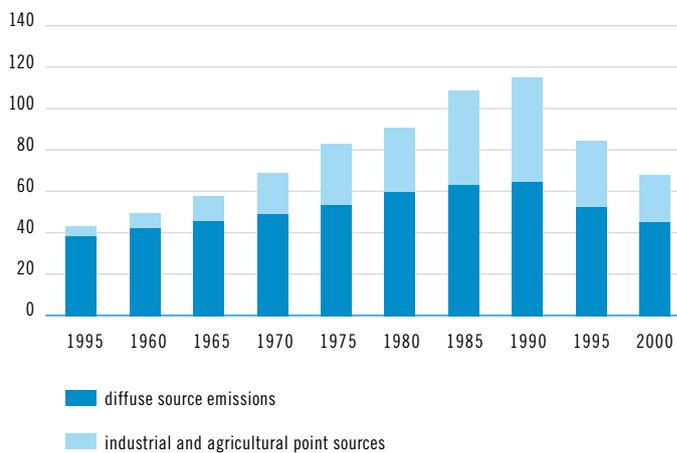
The ecological situation in the Black Sea has improved considerably in the last decade, including reduced eutrophication, reduced appearance of anoxic conditions and regeneration of zoo-benthos and phytoplankton. This improvement is due to nutrient removal at wastewater treatment plants, the replacement of phosphate-containing laundry detergents in some countries and the economic crises in several countries during the 1990s leading to a reduction of loads from industry and agri-industrial discharges.

Phosphorus loads discharged by the Danube River in 2000 are 30–50% lower than in the 1980s. The current emissions are similar to those in the 1960s (fig. 7).

Phosphorus loads discharged by the Danube into the Black Sea

FIG. 7

river loads and emissions (1000 tP/a)



The Black Sea is the most isolated sea in the world geographically, but cooperation – such as that between the ICPDR and the Black Sea Commission – is bringing the goal of rehabilitation and protection of the Black Sea closer than ever before.

Steps for the future

For the Black Sea, the BSC will prepare a statement on historical data and on the methodology for the development of the Black Sea monitoring system necessary for collecting the data on ten agreed indicators. The BSERP has analysed the quality of data and applicability of information on indicators collected, and this information will be used to assist in further development of the monitoring system of the Black Sea (called BSIMAP). An analytical quality control system for the Black Sea monitoring programme has to be developed, and it is expected that monitoring coastal waters will also be included in the BSIMAP.

The Danube-Black Sea Joint Technical Working Group agreed to review the indicators used to assess the impact of the Danube River on the Black Sea. This review would include a precise definition of the indicators, including the measurements needed and any interpretation of this data, and be in line with the European Marine Strategy.

It is essential that both Commissions would ensure that all contracting parties deliver required information on agreed parameters and indicators in a timely and comprehensive manner.





The DABLAS Task Force provides a cooperation platform for the protection of water and water-related ecosystems in the Danube and Black Sea Region, and ensures there is coordinated action between all financial instruments operating in the region.

DABLAS Task Force

The Danube-Black Sea Task Force (DABLAS) Implementation Working Group was established in 2005 to continue work on past activities, including the project pipeline development and improvement of reporting on pollution reduction following the DABLAS initiative. New tasks set at the 5th DABLAS Task Force meeting in Istanbul, Turkey, in July 2006 have been jointly implemented with the ICPDR, including widening the scope of DABLAS to cover all measures identified under WFD implementation, linking the WFD and EU Water Initiative and identifying special initiatives for the Black Sea and Danube countries.

The ICPDR considers that there is scope to use the WFD as a tool to implement the goals of DABLAS for countries where the WFD is not directly relevant. For the EU member states and the accession countries, where the WFD is a driving force, DABLAS should focus on facilitating and financing the identified programme of measures under the WFD. For the other DABLAS countries,

DABLAS should explore which elements of the WFD process could be beneficial and promote the sharing of experiences and good practices. The investment needs and the programmes and projects for improving the environmental situation in the Danube region will emerge from the WFD/ICPDR process. DABLAS, together with EU Water Initiative, facilitates the identification of funding sources to implement these projects and ensure that financing is swift and efficient.

Additional joint efforts are necessary to establish an efficient analysis and financing process based on the principles of the WFD, including coastal waters, in the Black Sea region. The lessons learnt from the Danube region could be transferred into other major river basins discharging into the Black Sea.



Alcoa Foundation

The specific objectives of the ongoing two-year Alcoa Foundation grant, implemented in the Mures River Basin, fit within Alcoa Foundation's area of excellence 'Conservation and Sustainability' and support the monitoring efforts of Romania and Hungary in transboundary areas.

In 2006, the Arad branch of the Romanian National Administration Apele Romane received new laboratory equipment, a TOC and N_{total} analyser and atomic absorption spectrophotometer, made possible through Alcoa Foundation. The equipment was used for the Mures River Basin to provide the necessary laboratory analysis at the Arad laboratory to meet ICPDR and WFD reporting requirements. The grant also provided training which allowed professionals to use appropriate equipment, learn about new assessment techniques and enhance their perception of the impact of water pollution.

Building stronger partnerships

The second grant implemented in 2006 focused on encouraging partnership between communities, governments and NGOs to reduce pollution and protect natural resources. One result of this partnership is the development of a handbook for the ICPDR, its affiliates and extended network to use to cultivate and pursue partnerships with multi-stakeholders. The handbook will be finalised in 2007 and will also complement the ICPDR's internal training programmes and workshops with stakeholders.

The handbook will provide advice on identifying and involving communities of interest in shared concerns and common ground. It will include ways of determining the potential nature and scope of public involvement, ensuring there is ongoing participation and feedback on the evaluation of partnerships. The handbook will highlight the best practices and lessons learned about using water quality monitoring data to communicate with different internal and external stakeholders within the Danube River Basin.



Green Danube partnership with the Coca-Cola system

On 2005 The Coca-Cola Company and its largest European bottler, Coca-Cola Hellenic Bottling Company S.A., signed a Memorandum of Understanding with the ICPDR for the joint protection and preservation of the Danube River. Under the agreement, the three parties started work towards celebrating the Danube River as a symbol of life and the environment in Central and Eastern Europe. The Memorandum of Understanding encourages the participation of other leading companies, extends celebrations of Danube Day, and works with local governments, educational institutions and NGOs on hands-on projects in Bulgaria, Hungary, Romania, Serbia, Slovakia and Ukraine.

In 2006, the partnership has achieved:

- Financial support for international Danube Day 2006 celebrations
- Financial support for travel of the Winner of the Danube Art Master Competition to Vienna in December 2006
- Financial and technical support for national activities in Serbia, Bulgaria, Romania, Moldova, Hungary, Ukraine, Croatia, Austria and Slovakia, involving Danube Day celebrations and other water related initiatives
- Technical support for the development of the 'Business Friends of the Danube' programme
- Financial and technical support for the development of the Danube Box education materials for the Danube River Basin.

For more information about Danube Day and the Danube Box, see chapter 11, 12.

Cooperation in Romania

In addition to the Alcoa Foundation grants, the Apele Romane water authority in Oradea has identified supplementary resources to organise and launch an ecological awareness campaign in the Black Cris River Basin to identify the best approaches for engaging and educating the public about pollution control.

Opportunities also arose from the new partnership with the business sector, such as with the Wastewater Treatment Plant of the largest drinks producers in Romania – European Drinks in Ordea.

11. River of Life: Danube Day 2006

Celebrations stretched across the region on June 29 for Danube Day 2006. Approximately 250,000 people attended 130 events in 13 countries. Danube Day inspired change across the basin and made a difference to the future of rivers and the people who rely on them.

As the 2006 ICPDR President, the spotlight was on Moldova to host a grand celebration and they did not disappoint – turning the ‘Day’ into a ‘Danube Week’ involving over 6000 people. Focus was on the Prut River, Moldova’s western border with Romania, where Environment Ministers from both countries, Constantin Mihailescu and Sulfina Barbu, jointly opened Danube Day at the Costesti-Stinca Reservoir. Cross-border ministerial events, cultural and awareness raising celebrations, river clean-up days and actions to improve water quality ensured it was a week of celebration and achievement.

Exploring natural habitats

Budding young ecologists from the Vylkove Danube Club in Ukraine took part in a two-day expedition to record the most threatened fish species: the sturgeon. School children in Austria were introduced to the river’s amazing wildlife with river safaris to the Lobau. In Regensburg, Germany, children were captivated by creepy-crawlies and fun water experiments at a ‘Water and Life Day’.

On riverbanks in Bosnia and Herzegovina, children paid tribute to the Danube by creating artworks, reciting poetry and learning about river science in natural surroundings. A returning highlight from last year, Slovak children sent ‘Danube Greetings’ as messages of international goodwill to the region. Startling and inspirational environmental films and artworks took centre stage at this year’s Czech Danube Day.

Seven days of celebration in Romania included outdoor activities like the ‘Danube Walk’, a day of merriment and summer dancing. Sturgeon fever came to Hungary with the Three Nations (Vienna–Bratislava–Győr) giving cycling enthusiasts from six countries the chance to share experiences and highlight the EU Sturgeon Action Plan.

Bringing communities together

In Serbia, visitors travelled to 12 towns at once by viewing exhibitions from almost every Serbian city on the river, enjoying the distinctive traditions and rich history of each. The sight of 20 traditional wooden boats sailing down the Mura greeted 3000 visitors in Slovenia this year as a reminder of the river’s past.

The slogan for Danube Day in Bulgaria, where events centred on flood prevention at a meeting of the Basin Council at Pleven, was ‘Protect the river in order to be protected by her’. Celebrations in Croatia included a touching commemoration and day of thanks in Vukovar to those who worked so hard during the dramatic Danube floods of April 2006.

/// Bosna i Hercegovina /// Srbija /// Crna Gora /// România /// България /// Moldova /// Україна /// Deutschland /// Österreich /// Česká republika /// Slovensko /// Magyarország ///

Tens of thousands participated in Danube Day events – ranging from conferences and workshops to concerts and exhibitions – all designed to entertain, educate and enthral!



////// Slovenija //// Hrvatska //// Bosna i Hercegovina ////

////// Moldova //// Україна //// Deutschland //// Österreich ////

Danube Art Masters in Vienna

Twenty-six young artists chosen as national art masters from around the Danube River Basin met in December 2006 in Vienna to award the 2006 International Danube Art Masters to four 17-year-olds from Romania for their piece 'The Danube Flows Through Us'.

The 'International Danube Art Master 2006' competition is part of Danube Day and the International Master is selected from the winners of the national 'Danube Art Master' competitions, which are held in all 13 Danube Basin countries. The competition was organised by the ICPDR in cooperation with the Danube Environmental Forum and the ministries responsible for water management from the ICPDR Contracting Parties.

"We believe that this competition encourages children to learn more about the Danube and help protect it," said ICPDR Executive Secretary Philip Weller. "It is also an artistic reminder for adults and the representatives of Danube national governments of their joint responsibility to ensure that the Danube is protected for future generations."

Turning the river into art

Participants were challenged to visit their local rivers and to contemplate what the river means to them. The winning entry expressed the solidarity of humans with the Danube by using body painting and natural materials. "We had so much fun when making the art. And at the same time we felt connected with the other pupils all along the Danube and its tributaries!" said co-winner Simona Oana Udrea.

The award ceremony was held as part of the Annual Meeting of the Delegations to the ICPDR and was accompanied by a week-long exhibition of the art work in the Exhibition Hall of the United Nations in Vienna. The ceremony was the highlight of a three-day trip to Vienna for all national winners and was supported by Coca-Cola HBC and The Coca-Cola Company, and was organised by Global Water Partnership Hungary.

Over 5000 students were inspired to participate in this year's Danube Art Master Competition. The winning entry elegantly expressed the solidarity of humans with the Danube by using body painting and natural materials, which united to create an impressive work.



12. The Danube in school: the Danube Box

Most children in the Danube Basin are able to name the river, that is closest to them. But they might have difficulty saying where the river flows from or to. And it might be impossible for them to name the ten countries the Danube flows through. A new educational tool based on the principles and objectives of sustainability and environmental education will now assist teachers in bringing the Danube closer to the minds and the hearts of the future generation.

The innovative education kit is the most comprehensive education kit about a river basin in the world, and is designed for teachers working with children aged 9 to 12. It can be used in classrooms and outdoors and reflects the methods of modern environmental education and education for sustainable development. The kit includes a handbook for teachers, a Danube poster, playing cards, worksheets, a CD-ROM with pictures from all over the Danube River Basin, maps and a quiz.

Partners in education

The Danube Box was developed by the Green Danube Partnership, established in 2005 between The Coca-Cola Company, Coca-Cola HBC and the ICPDR. The Green Danube Partnership is an initiative to demonstrate business responsibility for the future of the Danube. The Danube Box as a product of the Green Danube Partnership helps address the needs of countries, through workshops in Serbia, Bulgaria, Romania, Hungary and Slovakia.

“We take our corporate social responsibilities very seriously indeed,” said Sir Michael Llewellyn-Smith, a member of the board of directors of Coca-Cola HBC, “and we have significant operations along the Danube River which contribute to water conservation and to a wider understanding of the concept of sustainable development.”

The Danube Box was launched on Danube Day 2006 by Austrian Water Minister Josef Pröll, and City of Vienna Environment Councillor Ulli Sima, as well as representatives from Coca-Cola: Ulrike Gehmacher, Coca-Cola HBC; Monika Polster, Coca-Cola Austria. The Danube Box is in use in German in Austria and a translated version began for use in Hungary. Translations and adaptations are also under way for national versions for Germany, Romania and Serbia, and the box is available online in English (www.icpdr.org).



Although water education materials exist in nearly all Danube countries, tools focusing on the concept of integrated river basin management have been missing until now.

An integrated education on rivers

The Danube Box not only focuses on ecology, but links all aspects of the river – its importance in history, its economic value and its main problems. Furthermore, the Danube Box explains in simple terms what each and everyone can do to help the Danube River Basin or to support the concept of integrated river basin management.

The Danube Box answers a need to effectively communicate information and appreciation to the younger generation on the importance of the Danube River and its tributaries as part of our natural heritage.

The Danube Box was a great success in Austria – 2000 boxes were requested in the first six months after the launch, and requests were still coming in.

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Balancing the individual needs of each country with the needs of the entire Danube River Basin requires an integrated approach to river basin management.

13. Budget and financial contributions

Regular budget financial year 2006

At the 8th Ordinary Meeting of the ICPDR, (Vienna, 12 to 13 December 2005), the budget for the year 2006 of € 858,436.71 was approved.

Contributions FY 2006

| | Contribution in% | Contribution in Euro | Actually paid in Euro |
|---------------------|------------------|----------------------|-----------------------|
| Germany | 11.25 | 96,574.13 | 96,574.13 |
| Austria | 11.25 | 96,574.13 | 96,574.13 |
| Czech Republic | 11.25 | 96,574.13 | 96,574.13 |
| Slovakia | 11.25 | 96,574.13 | 96,574.13 |
| Hungary | 11.25 | 96,574.13 | 96,574.41 |
| Slovenia | 11.25 | 96,574.13 | 96,574.13 |
| Croatia | 7.00 | 60,090.57 | 60,090.57 |
| Serbia | 7.00 | 60,090.57 | 60,090.57 |
| Bulgaria | 7.00 | 60,090.57 | 60,090.57 |
| Romania | 7.00 | 60,090.57 | 60,090.57 |
| Moldova | 1.00 | 8,584.37 | 8,584.37 |
| Ukraine | 1.00 | 8,584.37 | 8,584.37 |
| European Commission | 2.50 | 21,460.91 | 21,460.91 |
| Total | 100.00 | 858,436.71 | 858,436.99 |

In financial year 2006 all outstanding payments from previous years were received.

Expenditures FY 2006

| | Approved Budget in Euro | Expenditures in Euro | Balance in Euro |
|--------------------------------|-------------------------|----------------------|-----------------|
| A) Administrative Costs | | | |
| 1. Staff | 495,500.00 | 488,719.59 | 6,780.41 |
| 2. Services | 174,600.00 | 174,542.43 | 57.57 |
| 3. Equipment | 5,000.00 | 4,523.98 | 476.02 |
| 4. Other | 103,436.71 | 102,856.28 | 580.43 |
| Subtotal A | 778,536.71 | 770,642.28 | 7,894.43 |
| B) Operational Costs | 79,900.00 | 79,802.30 | 97.70 |
| Overall Total (A+B) | 858,436.71 | 850,444.58 | 7,992.13 |

Special funds in 2006

In addition to the regular budget, special funds provided by various donors have allowed the ICPDR to undertake special activities in support of the Convention beyond those possible through the regular budget. All financial contributions to the ICPDR are shown separately in the account of the ICPDR.

About the ICPDR

The **International Commission for the Protection of the Danube River (ICPDR)** is an international organisation consisting of 14 contracting parties, including the European Union. Since its establishment in 1998, it has grown into one of the largest and most active international bodies engaged in river basin management in Europe. Its activities relate not only to the Danube River, but also to the tributaries and ground water resources of the entire Danube River Basin.

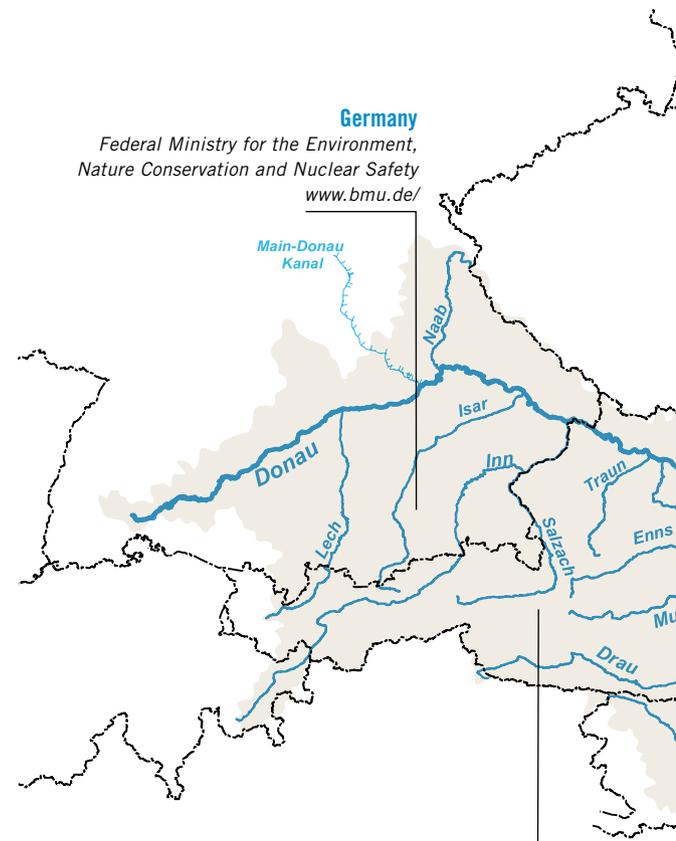
The ultimate goal of the ICPDR is to implement the Danube River Protection Convention. Its mission is to promote and coordinate sustainable and equitable water management, including conservation, and the improvement and rational use of waters for the benefit of the Danube River Basin countries and their people. The ICPDR pursues its mission by making recommendations for the improvement of water quality, developing mechanisms for flood and accident control, agreeing standards for emissions and ensuring that these measures are reflected in national legislation.

The ICPDR is supported by a Secretariat based in the Vienna International Centre in Vienna, Austria.

The contracting parties to the ICPDR are shown here, along with their organisations and website addresses:

European Union

European Commission, DG Environment
<http://ec.europa.eu/environment/>



Germany

Federal Ministry for the Environment,
 Nature Conservation and Nuclear Safety
www.bmu.de/

Austria

Ministry for Agriculture, Forestry,
 Environment and Water Management
www.lebensministerium.at

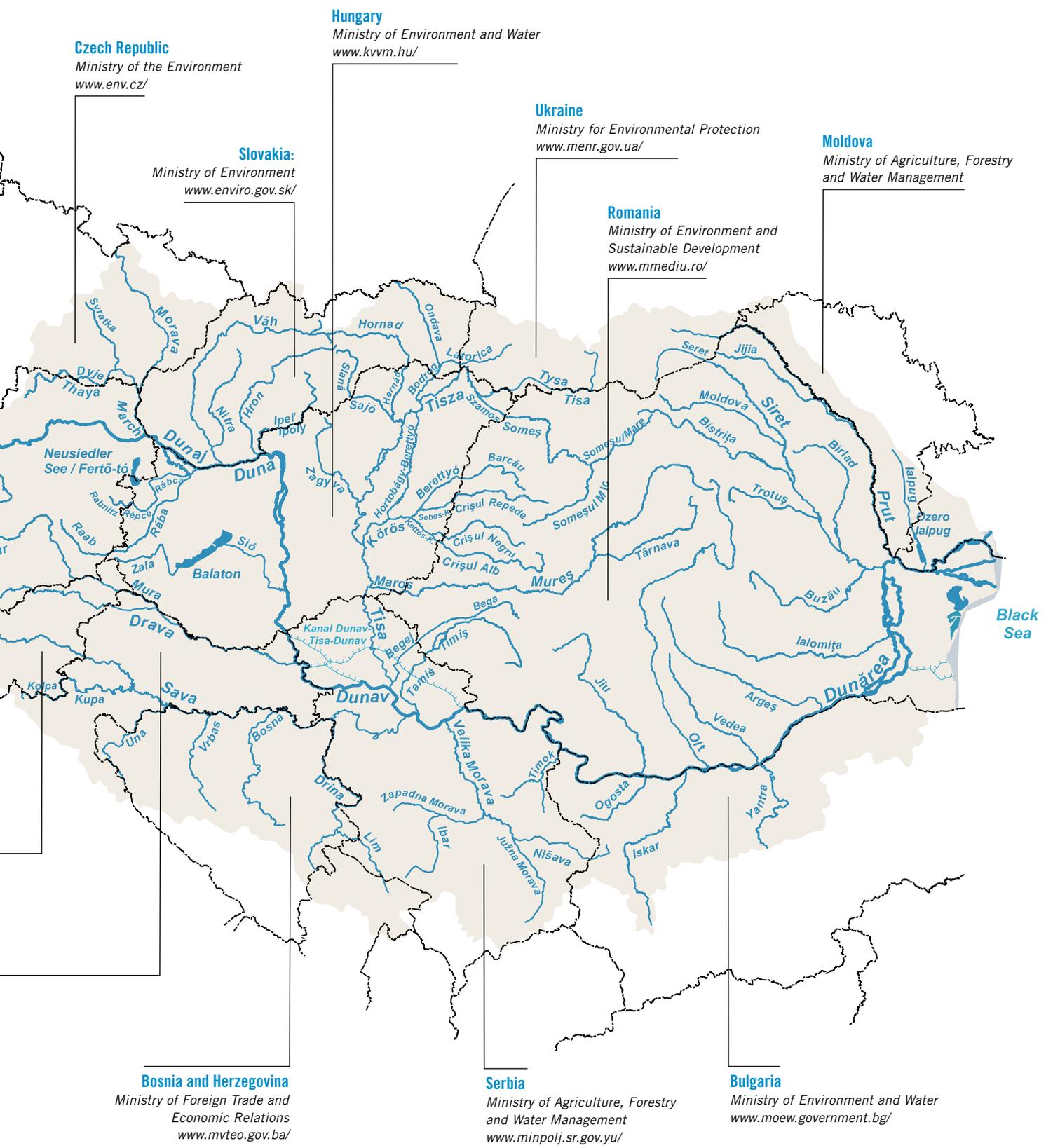
Slovenia

Ministry of the Environment
 and Spatial Planning
www.mop.gov.si/

Croatia

Ministry of Agriculture,
 Forestry and Water Management
www.mps.hr/

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Czech Republic
 Ministry of the Environment
www.env.cz/

Hungary
 Ministry of Environment and Water
www.kvvm.hu/

Slovakia:
 Ministry of Environment
www.enviro.gov.sk/

Ukraine
 Ministry for Environmental Protection
www.menr.gov.ua/

Moldova
 Ministry of Agriculture, Forestry
 and Water Management

Romania
 Ministry of Environment and
 Sustainable Development
www.mmediu.ro/

Bosnia and Herzegovina
 Ministry of Foreign Trade and
 Economic Relations
www.mvteo.gov.ba/

Serbia
 Ministry of Agriculture, Forestry
 and Water Management
www.minpolj.sr.gov.yu/

Bulgaria
 Ministry of Environment and Water
www.moew.government.bg/

ANNEX

Composition of the ICPDR in 2006

1. PRESIDENT

| | | |
|---------|-----------------------|--|
| MOLDOVA | Constantin MIHAILESCU | Minister, Ministry of Ecology and Natural Resources 9 Cosmonautilor str., 2005 Chisinau |
|---------|-----------------------|--|

2. HEADS OF DELEGATION

| | | |
|------------------------|---|---|
| Germany | Fritz HOLZWARTH | Federal Ministry for the Environment, Nature Conservation and Nuclear Safety Robert Schuman Platz 3, 53175 Bonn |
| Austria | Wolfgang STALZER | Federal Ministry for Agriculture, Forestry, Environment and Water Management, Section VII Marxergasse 2, 1030 Vienna |
| The Czech Republic | Jan HODOVSKY | Ministry of the Environment Vrsovicka 65, 10010 Praha 10 |
| Slovakia | Marian SUPEK | Ministry of Environment, Division of Waters and Energetic Sources Namestie L. Stura 1, 81235 Bratislava |
| Hungary | Gyula HOLLÓ | Department River Basin Management, Ministry of Transport and Water Management Fő utca 44-50, POB 351, 1394 Budapest |
| Slovenia | Mitja BRICELJ | Ministry of Environment & Spatial Planning Dunajska cesta 48, 1000 Ljubljana |
| Croatia | Zeljko OSTOJIĆ | State Water Directorate Ulica grada Vukovara 220, 10 000 Zagreb |
| Bosnia and Herzegovina | Reuf HEDZIBEGIC | Ministry of Foreign Trade and Economic Relations Musala 9, 71000 Sarajevo |
| Serbia | Nikola MARJANOVIĆ | Ministry of Agriculture, Forestry and Water Management, Directorate for Water 2a Bulevar Umetnosti, 11000 Belgrade |
| Bulgaria | Nikolai KOUYUMDZIEV Lubka KATCHAKOVA from Mar 2006 | Deputy Minister, Ministry of Environment and Water Bd. Maria Luisa 22, 1000 Sofia |
| Romania | Lucia Ana VARGA | State Secretary, Ministry of Environment and Water Management 12 B-dul Libertatii, Sect. 5, Bucharest |
| Moldova | Dumitri DRUMEA | Ministry of Ecology and Natural Resources 9 Cosmonautilor str., 2005 Chisinau |
| Ukraine | Stepan LYZUN | Ministry for Environmental Protection (MEP) 03035 Uritskogo str., Kiev |
| European Commission | Helmut BLÖCH | EC DG Environment, Unit Water and Marine Protection 1049 Brussels, Belgium |

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3. SECRETARIAT

| | |
|---|---|
| Philip WELLER | Executive Secretary |
| Igor LISKA | Technical Expert – Water Management & Water Quality |
| Mihaela POPOVICI | Technical Expert – Water Management & Emissions Pollution Control |
| Birgit VOGEL | Technical Expert – River Basin Management & WFD Implementation |
| Jasmine BACHMANN | Technical Expert – Public Participation & Public Relations |
| Alexander HÖBART | Technical Expert – Information Management & GIS |
| Anna KOCH | Finance Officer |
| Sylvia KERSCH | Management Assistant |
| Diana HEILMANN | Intern (Tisza) |
| Milica DJURIC | Intern (Sava) |
| Charlotte KJELLANDER (until October 15) | Project Support Staff |
| Patricia FALTUSOVA (since October 15) | |

4. CHAIRPERSONS OF THE EXPERT GROUPS AND EXPERT SUB-GROUPS

| | | |
|--|--------------------|--|
| River Basin Management Expert Group (RBM EG) | Joachim D'EUGENIO | European Commission, DG-Environment 1049 Brussels, Belgium |
| Ad hoc Tisza Group | Joachim D'EUGENIO | European Commission, DG-Environment 1049 Brussels, Belgium |
| Ad hoc Strategic Expert Group (S EG) | Knut BEYER | Federal Ministry for the Environment, Nature Conservation and Nuclear Safety WA I 6B, Robert Schuman Platz 3, 53048 Bonn, Germany |
| Ad hoc GIS & Information Management Expert Group (GIS&IM EG) | Eva SOVJAKOVA | Department of Water Protection, Ministry of Environment Vrsovicke 65, 100 10 Praha 10, Czech Republic |
| Pressures & Measures Expert Group (P&M EG) | Joachim HEIDEMEYER | Umweltbundesamt Postfach 330022, 1419 Berlin, Germany |
| Monitoring & Assessment Expert Group (MA EG) | Liviu POPESCU | Senior Expert, ICIM Research & Engineering Institute for Environment Spl. Independentei 294, Sect. 6, 77703 Bucharest, Romania |
| Flood Expert Group (Flood EG) | Sandor TOTH | National Water Authority Marvary u. 1/c, 1012 Budapest, Hungary |
| Ad hoc Public Participation Expert Group (PP EG) | Anemari CIUREA | Ministry of Environment and Water Management 12 Libertatii Bd, Sector 5, Bucharest, Romania |

5. OBSERVER STATUS AT 31.12. 2006

| Organisation Name | Address |
|--|---|
| Danube Commission for Inland Navigation | Danail Nedialkov, Director General Benczúr utca 25, 1068 Budapest, Hungary |
| WWF International | Michael Baltzer, Director DCP Mariahilferstr. 88a/3/9, 1070 Vienna, Austria |
| International Association for Danube Water Research (IAD) | Meinhard Breiling, General Secretary Dampfschiffhafen 54, 1220 Vienna, Austria |
| Ramsar Convention on Wetlands | Tobias Salathe, Regional Coordinator for Europe Rue Mauverney 28, 1196 Gland, Switzerland |
| Danube Environmental Forum (DEF) | Enikó Anna Tamas, DEF Secretariat Deri stny 13. III.4, 6500 Baja, Hungary |
| Regional Environmental Center for Central and Eastern Europe (REC) | Marta Szigeti-Bonifert, Executive Director Ady Endre ut 9-11, 2000 Szentendre, Hungary |
| International Commission for the Protection of the Black Sea (BSC) | Plamen Dzhadzhiev Dolmabahce Sarayi II, Hareket köskü II, 34353 Besiktas, Istanbul, Turkey |
| Global Water Partnership (GWP-CEE) | Milan Matuska, GWP-CEE Secretariat Jeseniova 17, 83315 Bratislava, Slovakia |
| UNESCO/IHP | Minorad Miloradov, Chairman IHP NC Republic of Serbia |
| International Working Association of Water Works in the Danube Basin (IAWD) | Markus Werderitsch c/o Wiener Wasserwerke, Grabnergasse 4-6, 1061 Vienna, Austria |
| Danube Tourism Commission (Die Donau) | Ursula Deutsch Margaretenstrasse 1, 1040 Vienna, Austria |
| VGB Power Tech | Juergen Lenz, CC2 Fossil fired Power Plants Klinkestrasse 27-31, 45136 Essen, Germany |
| International Sava River Basin Commission (ISRBC) | Dejan Komatina, Secretary Nova Ves 11, 10000 Zagreb, Croatia |
| European Barge Union (EBU) | Theresia Hacksteiner, Managing Director Postbus 23210, 3001 Rotterdam, Netherlands |
| via donau | Manfred Seitz, General Director Donau-City-Strasse 1, 1220 Vienna, Austria |



Contact:

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