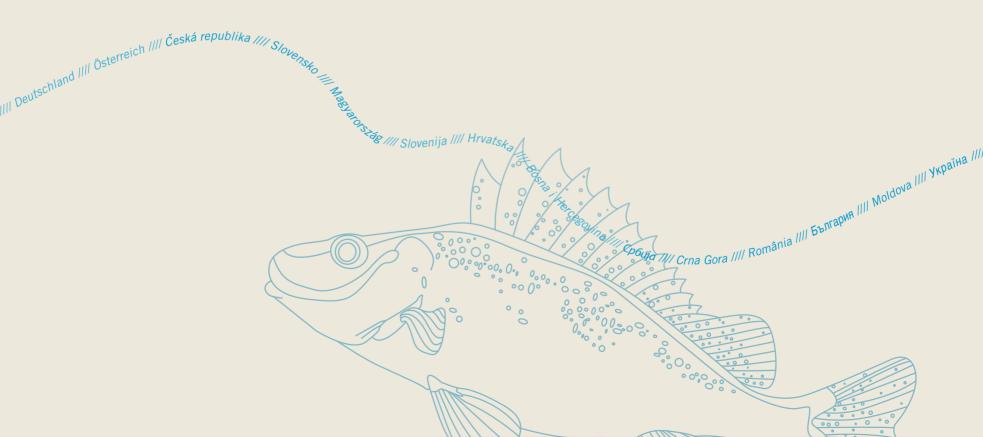


The Danube River Basin

Facts and Figures

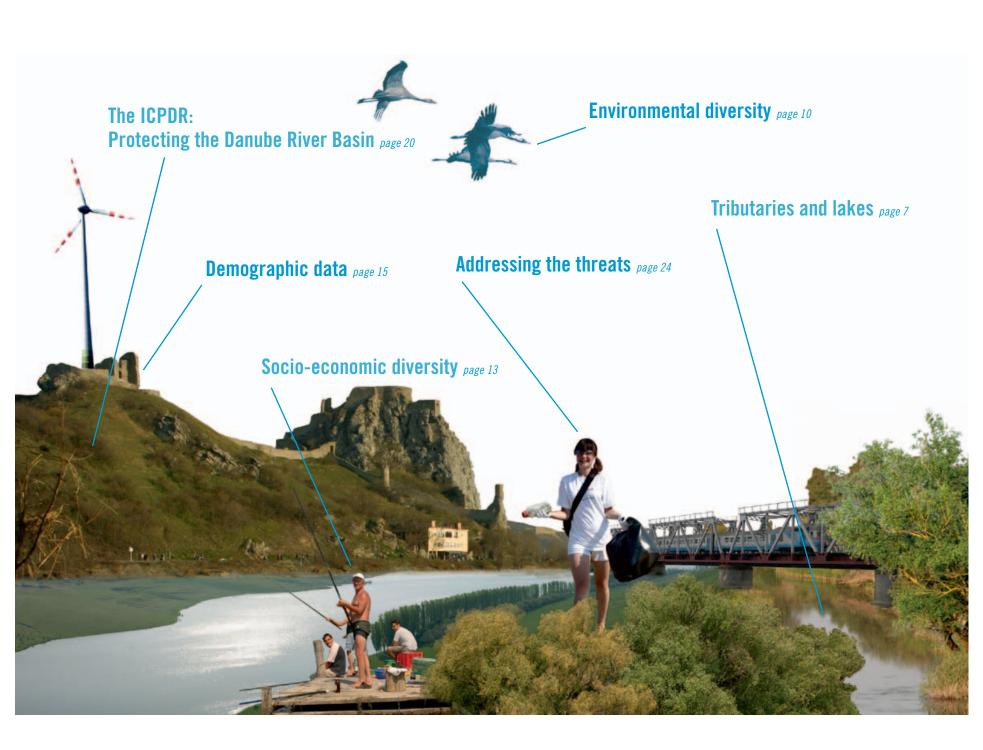




The Danube River Basin: an overview page 3







Danube River Basin District





Contracting Parties of the ICPDR

European Union

European Commission, DG Environment www.ec.europa.eu/environment/

Germany

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety www.bmu.de/ Responsible Federal States: www.stmug.bayern.de www.um.baden-wuerttemberg.de

Austri

Federal Ministry of Agriculture, Forestry, Environment and Water Management www.lebensministerium.at/

Slovenia

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

Czech Republic

Ministry of the Environment www.env.cz/

Croatia

Ministry of Regional Development, Forestry and Water Management www.mrrsvg.hr/

Bosnia and Herzegovina

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

Hungary

Ministry of Rural Development www.vm.gov.hu/

Moldova

Ministry of Environment and Natural Resources www.mediu.gov.md/

Bulgaria

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

Romania

Ministry of Enivironment and Forests www.mmediu.ro/

Ukraine

Ministry for Environmental Protection (MEP) www.menr.gov.ua/

Slovakia

Ministry of the Environment www.enviro.gov.sk/

Republic of Serbia

Ministry of Agriculture, Trade, Forestry and Water Management www.minpolj.gov.rs/

Montenegro

Ministry of Agriculture, Forestry and Water Management www.minpoli.gov.me/



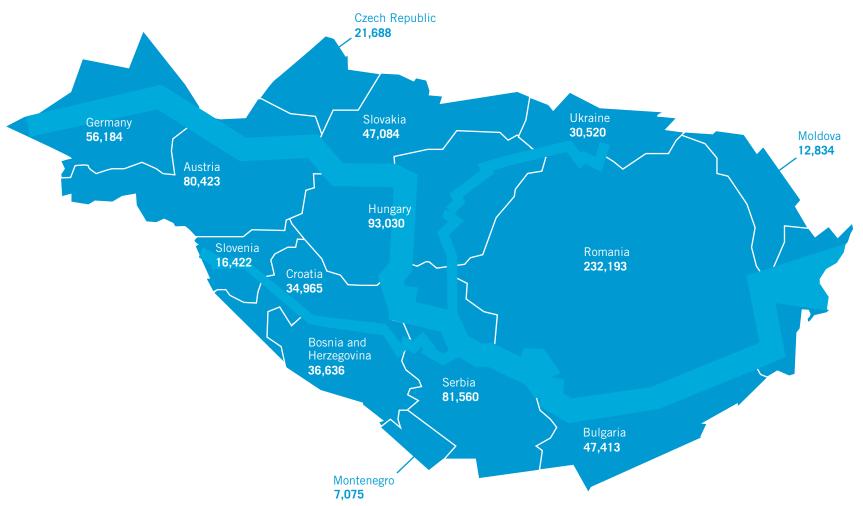
The Danube River Basin: an overview

The Danube River Basin is Europe's second largest river basin, with a total area of 801,463 km². More than 80 million people from 19 countries share the Danube catchment area, making it the world's most international river basin. All countries comprising over 2,000 km² of the Basin, and also the European Union, are contracting parties of the International Commission for the Protection of the Danube River (ICPDR), which is charged with coordinating the conservation, improvement and rational use of Danube waters.

Based on its gradients, the Danube River Basin can be divided into three sub-regions: the Upper, Middle and Lower Basins (the latter including the Danube Delta). The Upper Basin extends from the source of the Danube in Germany to Bratislava in Slovakia. The Middle Basin is the largest of the three sub-regions, extending from Bratislava to the dams of the Iron Gate Gorge on the border between Serbia and Romania. The low-lands, plateaus and mountains of Romania and Bulgaria form the Lower Basin of the River Danube. Before reaching the Black Sea, the river divides into three main branches, forming the Danube Delta, which covers an area of about 6,750 km².



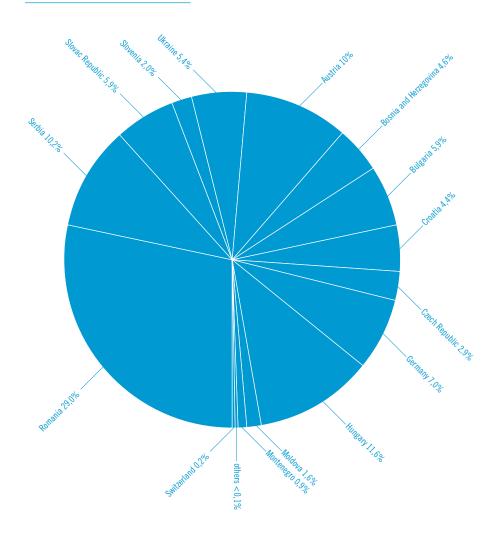
Territory in the Danube River Basin (DRB) [km²]



Did you know?

The Danube is 2,857 km long and up to 1.5 km wide. It is the second largest river in Europe — after the Volga (3,535 km).

Share of Danube River Basin in %



Topographic data for the Danube Basin countries

Topograpino data for the banase baom countries			
Country	Percentage of territory within the DRB [%]	Population in the DRB [in millions]	
Austria	96.1	7.7	
Bosnia and Herzegovina	74.9	2.9	
Bulgaria	43.0	3.5	
Croatia	62.5	3.1	
Czech Republic	27.5	2.8	
Germany	16.8	9.4	
Hungary	100.0	10.0	
Moldova	35.6	1.1	
Montenegro	51.2	0.2	
Romania	97.4	21.7	
Serbia	92.3	7.5	
Slovak Republic	96.0	5.2	
Slovenia	81.0	1.7	
Ukraine	5.4	2.7	

Tributaries and lakes

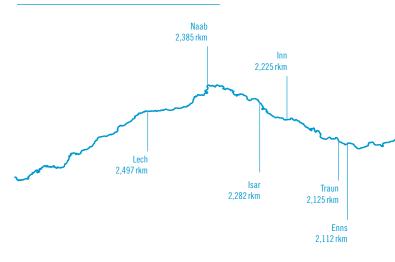
The Danube connects with 27 large and over 300 small tributaries on its way from the Black Forest to the Black Sea. There are also a large number of lakes in the Danube Basin.

The main tributaries of the Danube

The Tisza is the longest tributary of the Danube and the largest by catchment area. At 966 km in length, it is the second largest by flow after the Sava River.

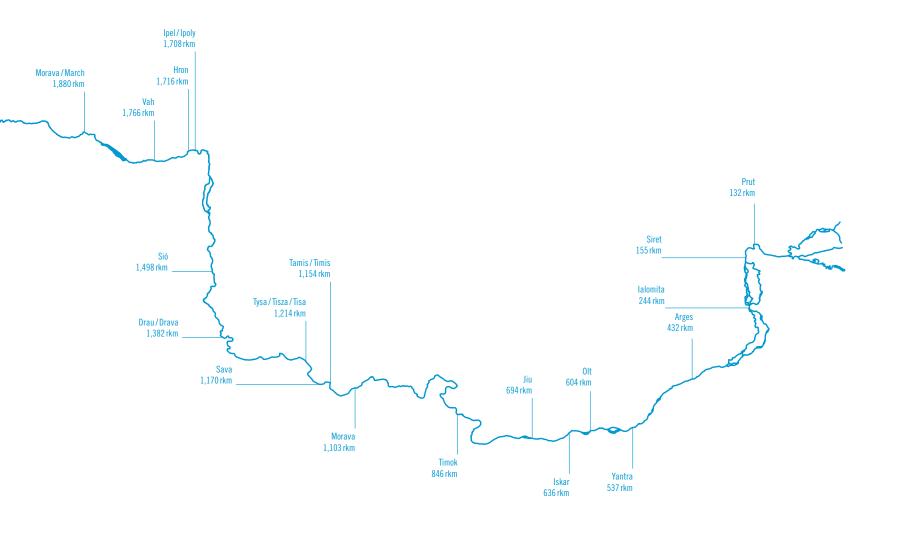
It drains an area of 157,186 km² in five countries (Slovakia, Ukraine, Hungary, Romania and Serbia). The second longest river is the Prut (950 km), which is also the last major tributary of the Danube, with its confluence located just upstream of the Danube Delta. Further downstream, the Prut forms the border between Romania and Moldova. The second largest river by catchment area, the Sava is 861 km in length and has the largest discharge of water to the Danube of any tributary. The Inn is the third largest of the Danube's tributaries by discharge, and the seventh longest. Finally, the fourth largest and fourth longest Danube tributary is the Drava. Like many of the Danube rivers, the Drava has been considerably regulated with dams constructed to generate hydroelectricity and channels dredged to direct its flow. Nevertheless, natural habitats along the middle and lower reaches host unique assemblages of flora and fauna, as well as several endemic species.

Confluence with Danube in river kilometre



Did you know?

A large floodplain area lies at the confluence of the Drava and the Danube rivers, including territories of Hungary, Croatia and Serbia. They provide favourable living conditions for over 20,000 birds and 55 different species of fish can be found in this area.



The main lakes and water bodies in the Danube Basin District

Austria Neusiedlersee Hungary Fertő-tó

Surface area	315 km^2		
Average depth	1.10 m		
Maximum depth	1.80 m		

Hungary Lake Balaton

Surface area	605 km²		
Average depth	3.60 m		
Maximum depth	10.60 m		



Romania Lacul Sinoe

Surface area	162 km ²
Average depth	N/A
Maximum depth	N/A

Romania Zmeica and Golovita Lake

0 1	162 km ²
Average depth	N/A
Maximum depth	N/A

Romania Lacul Razim

Surface area	392 km²
Average depth	N/A
Maximum depth	N/A

Ukraine Ozero lalpuh

Surface area	149 km²
Average depth	N/A
Maximum depth	N/A

Did you know?

Often affectionately called the "Hungarian Sea" in landlocked Hungary, Lake Balaton is the largest lake in Central Europe. The Hungarian word "Balaton" derives from Slavic word "blato", which means "mud" or "swamp"

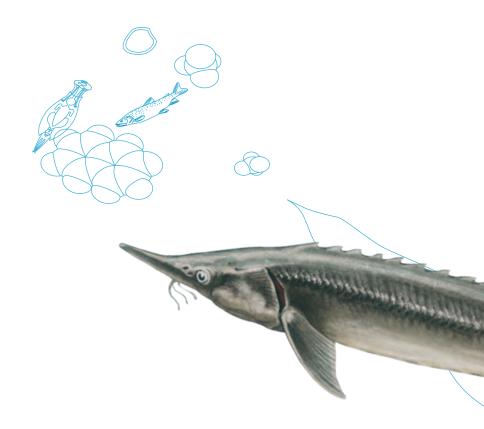
Main Danube tributaries

River	Enters the Danube at	Length in km	Size of catchment in km²	Average, discharge in m³/s
Danube	-	2857	801,463	6,460
Lech	Marxheim (near Donauwörth), Germany	254	4,125	115
Naab	Regensburg, Germany	191	5,530	49
Isar	Near Deggendorf, Germany	283	8,964	174
Inn	Passau, Germany	515	26,130	738
Traun	Near Linz, Austria	153	4,257	132
Enns	Mauthausen, Austria	254	6,185	203
Morava/March	Devín, Slovakia	329	26,658	106
Raab/Rába	Györ, Hungary	311	10,113	88
Vah	Komárno, Slovakia	398	18,296	161
Hron	Near Štúrovo, Slovakia	278	5,463	55
Ipel/Ipoly	Near Szob, Hungary	197	5,108	22
Sió	Near Szekszárd, Hungary	121	9,216	39
Drau/Drava	Near Osijek, Croatia	893	41,238	577
Tysa/Tisza/Tisa	Near Titel, Serbia	966	157,186	794
Sava	Belgrade, Serbia	861	95,719	1,564
Tamis/Timis	Near Pančevo, Serbia	359	10,147	47
Morava (RS)	Near Smederevo, Serbia	430	37,444	232
Timok	Bulgarian-Serbian border	180	4,630	31
Jiu	Near Gighera, Romania	339	10,080	86
Iskar	Gigen, Pleven Province, Bulgaria	368	8,684	54
Olt	Turnu Mugurele, Romania	615	24,050	174
Yantra	Svishtov, Bulgaria	285	7,879	47
Arges	Olteniţa, Romania	350	12,550	71
lalomita	Near Hârtşova, Romania	417	10,350	45
Siret	Galaţi, Romania	559	47,610	240
Prut	Near Reni, Ukraine	950	27,540	110

Environmental diversity

Due to its large area and very diverse habitats – gravel islands on the Upper River, significant areas of forest floodplain, extended wetlands on the Lower River – the Danube River provides the right living conditions in areas of high landscape- and biodiversity for a large number of different species. Along its course there are some 230 of the Danube River Basin's 2,860 Natura 2000 sites, an ecological network of internationally important protected areas in the territory of the European Union.

Over 2,000 plant species and 5,000 animal species live in or by the waters of the Danube, a habitat which hosts about 2,000 vascular plants, over 40 mammals, approximately 100 fish species as well as important bird sanctuaries for species such as the Dalmatian pelican. In addition, among the eight member states participating in the policy to protect these sanctuaries, Slovenia and Bulgaria have the highest terrestrial rate of Natura 2000 sites coverage in the whole EU. At 6,750 km², the delta of the Danube River is one of the world's largest wetlands (and Europe's largest remaining natural wetland) featuring rare fauna and flora, as well as 30 different types of ecosystem. Located in the territories of Romania and Ukraine, it became a UNESCO World Heritage Site in 1991.





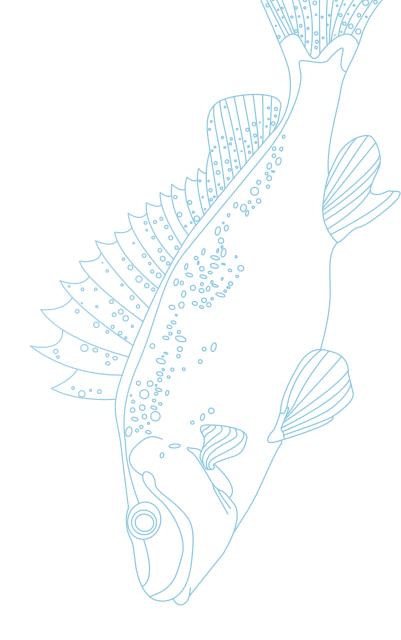


Socio-economic diversity

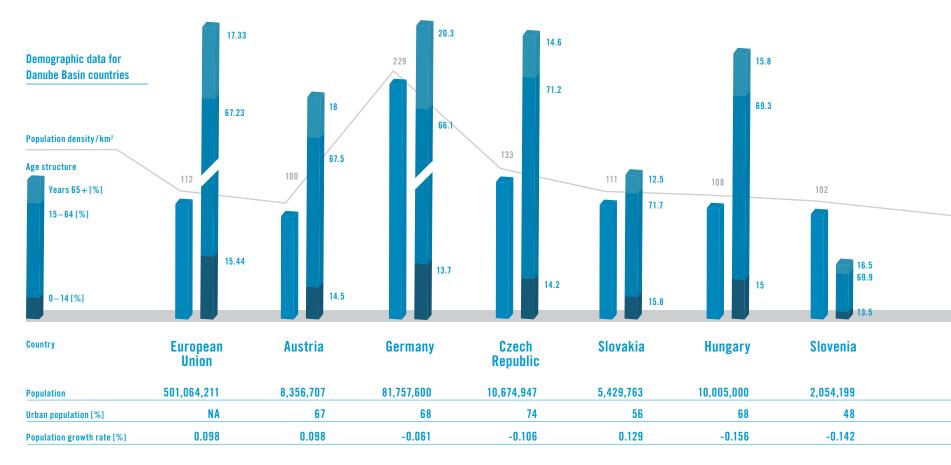
The Danube countries all depend on the Danube waters as an economic resource. Despite this uniting feature, the Danube Rivers flow through countries with very different social and economic conditions. For over forty years, Europe was divided into two political systems by the Iron Curtain. Following the collapse of the Soviet Union, the countries of Eastern Europe faced political and economic upheaval, with emerging free-market democracies and the associated impacts of globalisation, privatisation and deregulation. Simultaneously, industrial and agricultural output collapsed, leading to high unemployment. More recently, several Eastern European countries have made huge progress, successfully adapting production to international standards and acceding to the European Union.

The socio-economic data presented in the table left shows how diverse the region is. There is a wide gulf between the GDP per capita of Austria, Germany and Slovenia and the other Danube Basin countries: the wealthiest country's GDP per capita is nearly 14 times higher than that of the poorest.

In terms of the characteristics of water use, data shows great differences in the Danube countries. They correspond mainly to the relative importance of the agricultural sector. While 9.8% of Ukrainian, 12.4% of Romanian and 21.8% of Moldovan GDP is generated from agriculture, this share is only 1.7% for Austria, 2.4% for Germany and 2.6% for Czech Republic.

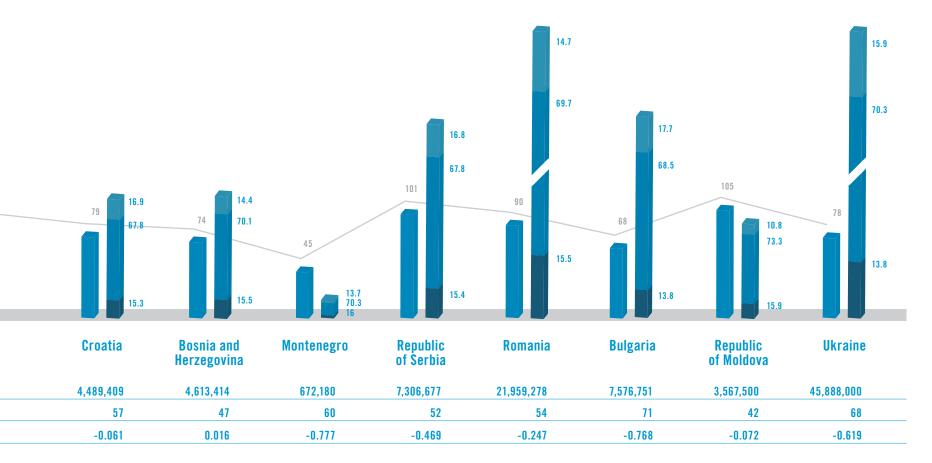


Demographic data



The population of Europe as a percentage of the world population is rapidly decreasing and is expected to decline over the next forty years. Populations in the Danube River Basin are no exception. Most of the Danube Basin countries have begun to experience negative population growth rates, with only three countries – Austria, Bosnia and

Herzegovina and Slovakia – displaying marginal population growth. As populations in the Danube Basin shrink and age, this will result in changing social and consumption patterns that may, in turn, lead to a change in environmental impacts.



Relying on the Danube: sustenance, energy and livelihoods

The economic value of the Danube River is immense; it is a vital resource for water supply, sustaining biodiversity, agriculture, industry, fishing, recreation, tourism, power generation and navigation. A large number of dams, reservoirs, dykes, navigation locks and other hydraulic structures have been built in the Basin to facilitate many of these important water uses.

Historically, the Danube and some of its main tributaries, such as the Sava, have formed important trade routes across Europe for centuries. Historically, the channelization of the river's course has made it easier for ships to navigate 2,411 km, or 87%, of the length of the Danube. As "Corridor VII" of the European Union, the Danube connects the Black Sea with the industrial centres of Western Europe and with the Port of Rotterdam. Recent years saw an increasing awareness for the need to balance economic and environmental need in navigation management with special attention to the natural characteristics of the river. This was reflected in the "Joint Statement on Inland Navigation", issued by the ICPDR, Danube Commission and Sava Commission. A similar consultation process is maintained between the ICPDR and representatives from the hydropower sector.





Did you know?

Hydropower accounts for 30% of national generation capacity in Romania, which has more than 400 large dams. Around 60% of the annual electricity generation within the Danube River Basin in Austria originates from hydropower.

Did you know?

A single inland navigation vessel can carry the same volume of goods as 93 railway wagons or 173 trucks.

Did you know?

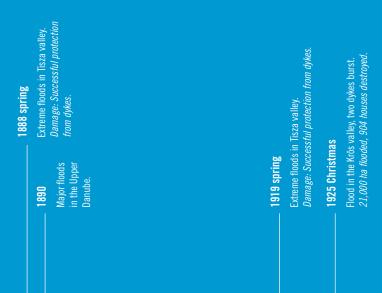
Owing to its considerable natural gradient, a total of 59 dams have been built in the upper part of the Danube. This means that the Upper Danube is interrupted every 16 km on average. There are over 700 dams and weirs along the main tributaries of the Danube. As such, very few stretches can still be characterised as free-flowing.

Floods and flood protection

Flooding is the most common natural disaster in Europe and, in terms of economic damage, the most costly one. There have been 78 significant floods along the Danube over the last nine centuries; 23 of them took place in the 18th century before extensive flood protection works were started. Since then significant areas of natural floodplains have been lost through drainage for agriculture, city development and flood protection dykes -80% in total.

Recent years saw a steepening in the curve of flood frequency, and high-water marks have set records three times since 2002. Five of the most significant floods have occurred in the last 10 years. Neglected levies contributed to this damage, along with long winters and unusually heavy snow and rain. Multi-annual averages for precipitation have been exceeded by 1.5 to 2.0 times recently, a maximum never before observed since systematic instrumental weather observations have been available.

The increasing regularity of dangerous hydro-meteorological phenomena is a cause for concern. Estimation scenarios by the European Environmental Agency predict that flood damage and the number of people affected by flooding will rise substantially by 2100 as a result of climate change, with one scenario estimating a rise in flood damage of some 40% and an increase in the number of people affected of around 242,000 (about 11%). The EU formalized flood management in 2007 through the Flood Directive. The ICPDR coordinates its implementation in the Danube Basin.



1838 March
 Icy flood in Budapest.
 Damage: 10.100 house

Measures to manage floods

- 1. Improving flood forecasts and early flood warning systems.
- 2. Supporting coordinated sub-basin-wide flood action plans.
- 3. Creating forums for exchange of expert knowledge.
- 4. Promoting a common approach to assess flood-prone areas and evaluate flood risk.

Major floods in the Upper Danube.

1965 April-July

The biggest ever summer flood of the Danube at that time. Due to significant protection efforts a disaster was prevented.

11 dykes burst in the Rába valley.

1970 May-July

The largest ever Tisza valley flooding at that time.

In other areas, the catastrophe was prevented by protection efforts. 14 dykes burst in the Romanian section of the Szamos and 3 in the Hungary. 57,000 ha flooded, 5,400 buildings destroyed, 9,000 inhabitants were relocated

for safety reasons.

Tazlau Romania.

1998-2001

1997

Extreme floods in four subsequent years at the Tisza

Flooding on the Oder (Poland, Germany) and Morava/Danube (Czech Republic, Germany).

2002

Record flood levels for the Danube. Romania: 31 lives lost, 55roads closed, 600 bridges washed away. Bulgaria & Moldova: 14,000 people evacuated.

2006

Record flood levels for the Danube.

Bulgaria: 482 buildings destroyed, 300 people evacuated, 6,000 lives endangered.

Romania: 300 buildings destroyed, 16,000 people evacuated, 150 villages flooded. Serbia: several thousands evacuated due to a lack of clean water.

2009

Floods at Tisza and Danube simultaneously.

2010

Record rain and flood levels for the Danube. Hungary: 198,000 ha affected. Romania: 110,000 ha of agricultural land were inundated by water.

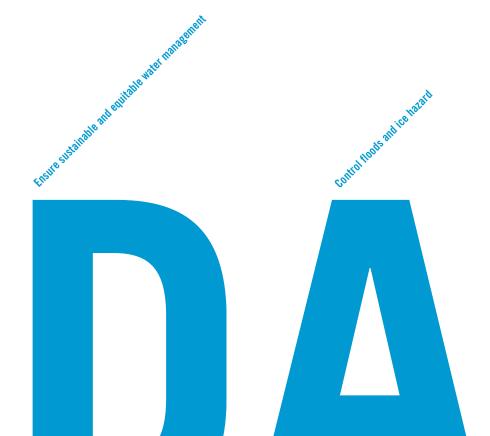
The ICPDR: Protecting the Danube River Basin

The Danube countries came together to sign the Danube River Protection Convention (DRPC) in 1994 and established the International Commission for the Protection of the Danube River (ICPDR) in 1998 to fulfil the Convention's objectives. The ICPDR is made up of 15 contracting parties (Austria, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldova, Montenegro, Romania, Serbia, Slovakia, Slovenia, Ukraine and the European Union) committed to implementing the DRPC; it is a forum for coordination and cooperation on important water management issues.

The ICPDR comprises primarily of national delegations that meet twice a year. With a secretariat based in Vienna, it is chaired by a president who serves for one year, and the presidency is passed on from one member country to another in alphabetical order. Much of the work of the ICPDR is done by Expert Groups, panels of specialists from the ICPDR member countries and 21 official observers.

The ICPDR is also the facilitating platform for implementation of the EU Water Framework Directive (WFD) and the EU Flood Directive (EFD). Although not all members of the EU, contracting parties to the ICPDR have committed to meeting the goals of the WFD, which requires "good status" or "good potential" of all surface and ground waters by 2015.

Objectives of the Danube River Protection Convention



Did you know?

The 29th of June each year is Danube Day, an excellent and light-hearted way to engage the Danube River Basin's more than 80 million inhabitants in celebrating their rivers and participating in the development of a sustainable future for the region. Find out more at: www.danubeday.org.

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Danube environment under threat

22

22% (5,494 km) of the length of tributaries are of good ecological status/potential.

Human activity has affected the Danube and its network of tributaries negatively in manifold ways. Industry, agriculture and tourism are all economically important and depend on the Danube as a resource, yet at the same time they also threaten the Danube as a biodiversity hotspot. The following subsections provide an overview of some of the most significant threats to the Danube environment.

Water pollution

The list of industrial pollutants added by countries as the Danube flows south and east is long: fertilisers, farm pesticides and manure, as well as discharge from smelters, paper mills, chemical plants and tanneries. Human activities in the Danube River Basin are responsible for the high levels of nutrients (nitrogen and phosphorus) discharged into the water. The main sources of nutrients in the Danube are agriculture (50%), municipal waste water (25%) and industry (25%). The total nitrogen load in the Danube is between 537,000 and 551,000 tonnes per year and the total phosphorus load is 48,900 tonnes per year. The legal limit for nutrient content in groundwater is often exceeded throughout the whole basin, though at least decreasing in recent years. The river is further polluted by hazardous substances, such as heavy metals, oil and microbiological pollution. Increased shipping along the Danube would most likely increase overall pollution, as will future crises and disasters.

Crises and disasters

A number of crises and disasters have affected the Danube River Basin in recent years. Some of them have gained worldwide media attention, such as the Baia Mare cyanide spill in 2000 or the Ajka red sludge spill in 2010. At this recent event, a dam broke at a Hungarian aluminium plant, releasing some 700,000 m³ of red sludge. 10 people died and about 1100 hectares of land were affected. The ICPDR has set up the Accident Emergency Warning System (AEWS) of the Danube River Basin, which is activated whenever there is a risk of transboundary water pollution. The AEWS sends out international warning messages to countries downstream to help the authorities put environmental protection and public safety measures into action.

Loss of wetlands and floodplains

Man-made changes to the natural course of the Danube waterways have interrupted river and habitat continuity and have disconnected wetlands and changed water quantity and flow conditions. Draining wetlands for agriculture often provides only marginal farmland while destroying unique wetland habitat while introducing foreign varieties of trees to floodplain forests and clear cutting in the name of industry eliminates undergrowth and alters the function of the floodplain ecosystem. Building towns and villages in floodplain areas also leaves them prone to damage from flooding. Species in the Danube River Basin are also threatened: migratory fish such as the Beluga have lost access to their spawning grounds due to dams and levies, threatening their existence in the Danube region.



56

56% of the Danube River have been designated as heavily modified. Good ecological status cannot be achieved in these stretches due to physical alterations.

27

27% of the river network do not achieve good chemical status.

3

3 of 11 transboundary groundwater bodies are experiencing significant nitrate pollution; 8 were found to be of good chemical status.

Addressing the threats

The ICPDR is an international organisation that acts as a platform to coordinate responses to various environmental threats. Since 2009, the Danube River Management Plan (DRBM) provides a roadmap for this. It contains a Joint Programme of Measures and aims to fulfil the EU Water Framework Directive (WFD). The ICPDR also implements the EU Flood Directive (EFD) and plays a key-role in the EU Danube Strategy.

Pollution Reduction

The contracting parties of the ICPDR have developed best agricultural and industrial practices. These include the appropriate use of agrochemicals, proper storage of manure, or effective irrigation. Wastewaters from households are subject to important measures: wastewater treatment plants are modernised and for years, the ICPDR has worked towards limiting phosphates in detergents. This was recently taken into consideration for EU legislation. Ongoing assessments of water quality are done through the TNMN (Transnational Monitoring Network), which is coordinated by the ICPDR.

Flood Protection

In response to the danger of flooding, the ICPDR adopted the Action Programme on Sustainable Flood Protection in 2004. The goal of this program is to achieve a long-term and sustainable approach for managing the risks of flooding to protect human life and property, while encouraging conservation and improvement of water-related ecosystems.

River Restoration

The natural course of the rivers in the Danube River Basin was altered for centuries, mainly for agriculture, hydropower generation, flood defence, and navigation. Hydromorphological alterations such as river interruptions, the disconnection of wetlands, or water abstraction can provoke changes in the natural structure of rivers. As a response, the ICPDR has started initiatives that include the restoration of river continuity, the establishment of green corridors, and the construction of fish migration aids. In addition, the ICPDR engages in an active dialogue with representatives from the hydropower, flood protection and navigation sector to work towards the restoration of a natural river morphology.

Public Participation

Taking views from the public into consideration for water management is vital for balancing environmental, economic and social needs in the protection of the Danube River Basin. The WFD requires that countries encourage the active involvement of interested parties in decision making. Public participation is therefore a key principle of the ICPDR. On a formal level, observers have the right to participate at all ICPDR decision-making meetings.

Visions of the ICPDR Danube River Basin Management Plan

Hazardous substances:

No risk or threat to human health or the aquatic ecosystem;

Nutrient pollution:

Balanced management so that neither the waters of the Danube Basin nor the Black Sea are threatened or affected by eutrophication;

Organic pollution:

Zero emissions of untreated waste water into the basin's rivers;

Hydromorphological alterations:Balanced management of structural man-made

Balanced management of structural man-made changes so that the aquatic ecosystem functions holistically with all native species represented.

Groundwater:

Emissions of polluting substances do not cause any deterioration of groundwater quality.

Water use is appropriately balanced and does not exceed the available resources.

Further information:

http://www.icpdr.org/ http://www.danubeday.org/ http://www.danubebox.org/ http://www.icpdr.org/jds/

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Photographs: Milorad Drca, Gerfried Koch, János László, Victor Mello, Mario Romulic, Milan Vogrin and ICPDR Photos The ICPDR would like to thank the organisations and photographers for providing the photographs for free.

Disclaimer:

The information presented in this brochure is largely based on the Danube River Basin Management Plan (DRBMP) of 2009 and its underlying analysis. All other sources can be given upon request.

Where data has been made available, it has been dealt with and presented to the best of our knowledge. Nevertheless, inconsistences cannot be ruled out.

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