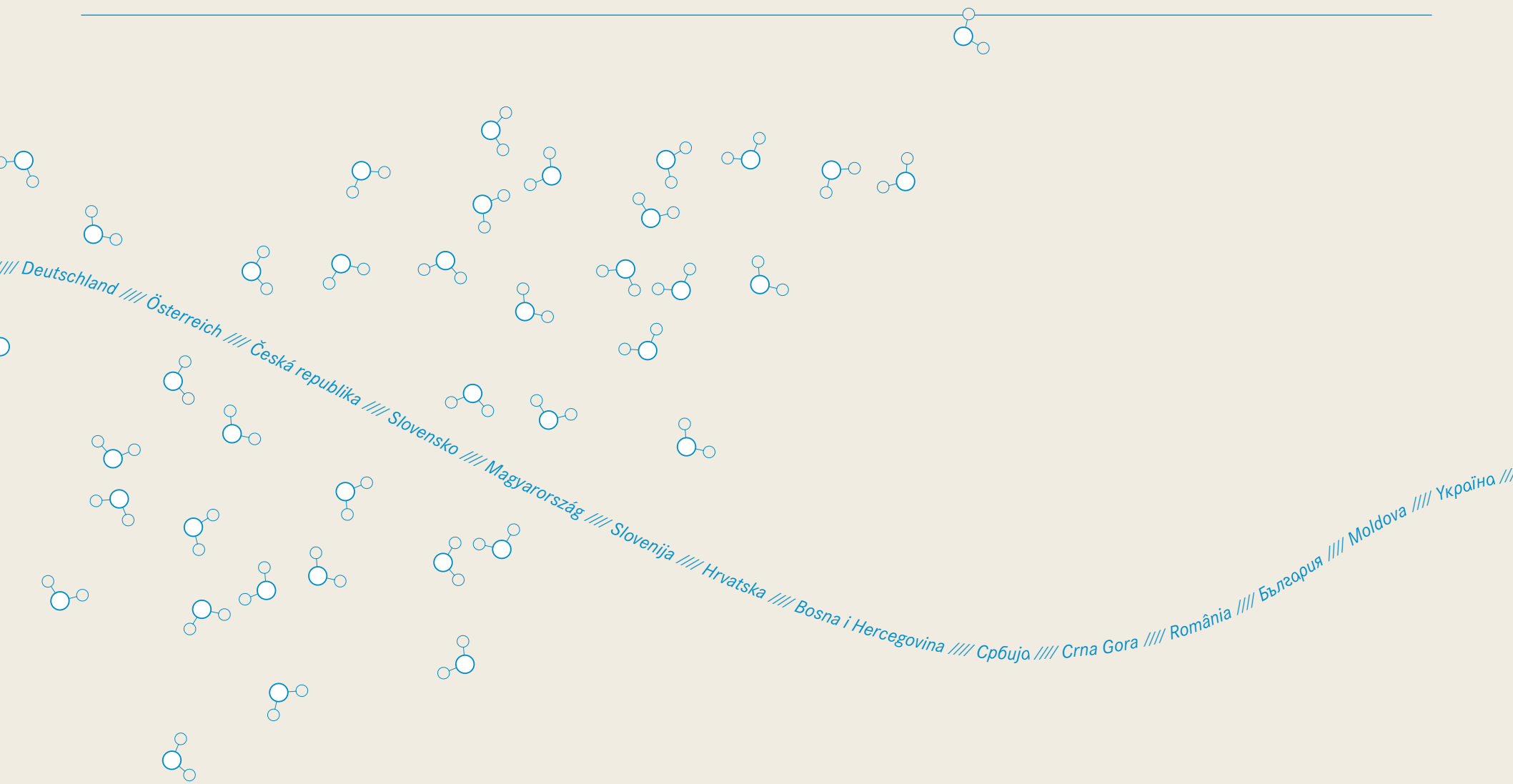
The Danube River Basin Management Plan 2015–2021

icpdr iksd

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau



The Danube River Basin Management Plan: What & Why?

Covering more than 800,000 square kilometres and 10% of continental Europe, the Danube River Basin extends into the territories of 19 countries, making it the most international river basin in the world.

Over 80 million people reside in the basin, with many depending on its diverse uses, such as drinking water, energy production, agriculture, and transport. Its ecological diversity, from plant and animals species to critical habitats, is also highly valued.

In 1994, the Danube River Protection Convention (DRPC) was signed. Today, 14 Danube Basin countries and the European Union are 'contracting parties' which work towards the joint management of water in the basin (see map).

In 2000, the EU Water Framework Directive (WFD) came into force, establishing a legal framework to protect and enhance the status of aquatic ecosystems, prevent their deterioration, and ensure the long-term, sustainable use of water resources throughout the EU. In response, Danube countries, including non-EU Member States, agreed to implement the WFD throughout the entire basin. As the facilitating platform for the contracting parties of the DRPC, the International Commission for the Protection of the Danube River (ICPDR) was mandated to coordinate WFD-related work at the multilateral and river basin level.

The WFD requires all EU surface inland waters, transitional and coastal waters, to achieve 'good chemical and ecological status (or potential)' – and all groundwaters to achieve good chemical and quantitative status – by 2015. 'Good chemical status' means that the water should be clean and concentrations of organic or hazardous substances should not exceed standard values. For a set of selected specific pollutants and hazardous substances, concrete limit values were set on European level which are defining "good chemical status". However, it is not enough for a river to only have clean water without anything living in it. That is why the WFD applies a holistic approach and also requires surface waters to be in 'good ecological status': River bed and banks have to be well structured and enough water has to be ensured so that migration routes and suitable habitats are provided for animals and plants to live healthily. For example, many fish need gravel bank habitats for spawning, but this may not be available along an engineered stretch of river even though that stretch might have 'clean water'.

To meet WFD requirements, countries had to develop a River Basin Management Plan (RBMP) by 2009 with 'measures' they should take to achieve good status by 2015. Aware of the significant challenge to implement measures and the reality that not all waters would hit the target in six years, the WFD also requires countries to produce updated RBMPs every six years.

This brochure provides a brief description of the updated 2015 Danube RBMP and its perspective until 2021, as well as progress achieved since 2009. Some changes were made to the new Plan in 2015, such as adding new topics for investigation like adaptation to climate change, inter-sectoral cooperation with hydropower, as well as water scarcity and drought.

Linkages were also made with new EU policies such as the Floods Directive (see accompanying brochure at back) and the Marine Strategy Framework Directive, for example, to manage the impacts of the Danube on the Black Sea.

As "charismatic" flagship species, sturgeons were adopted as symbols for the sustainable management of the Danube River Basin. Located in the "upper floor" of the aquatic food chain and ecosystem, and as long-distance migratory species, their well-being relies on many aspects of river basin management.

ORGANIC POLLUTION

Our visions for the future

Both the 2009 and 2015 Danube River Basin Management Plans (DRBMP) focus on four significant water management issues (SWMIs) that can affect the status and quality of surface waters like rivers, lakes, transitional and coastal water bodies and transboundary groundwater bodies. Based on the detailed picture we now have of the Danube Basin, the DRBM Plan outlines visions for each SWMI to achieve an improved and sustainable water environment.

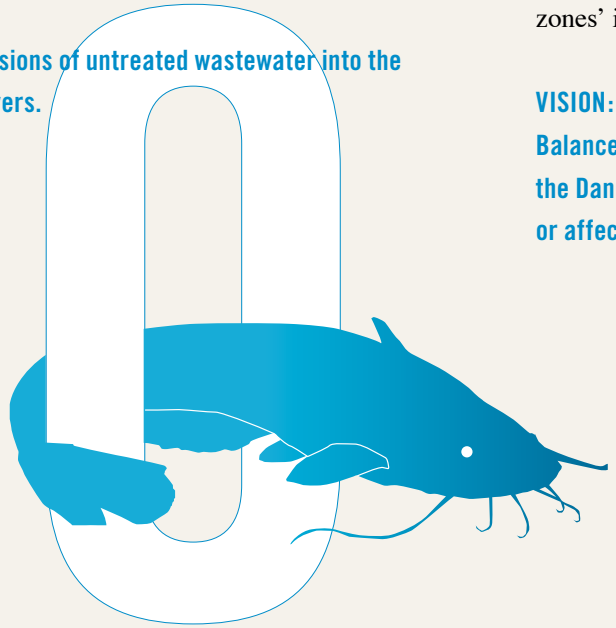
SWMI 1: Organic pollution

ISSUE:

An excess of organic matter, coming from untreated and inadequately treated wastewater from communities, industry and agriculture, which can harm aquatic populations and water status.

VISION:

Zero emissions of untreated wastewater into the basin's rivers.



SWMI 2: Nutrient pollution

ISSUE:

High levels of nutrients (nitrogen and phosphorus) from untreated and inadequately treated wastewater, agricultural practices, industry and transport can result in 'eutrophication', where harmful growths of algae can produce oxygen deficits and even 'dead zones' in water bodies.

VISION:

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

NUTRIENT POLLUTION

HAZARDOUS SUBSTANCES

SWMI 3: Hazardous substances

ISSUE:

Man-made chemicals, metals, oil and its compounds, organic micropollutants, pesticides and medications stemming from wastewater, industry, urban stormwater run-off and combined sewer overflows, agricultural practices, mining operations and accidental pollution, that are often very persistent and harmful even in low concentrations.

VISION:

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

SWMI 4: Hydromorphological alterations

ISSUE:

Changes to the physical (morphological) and hydrological characteristics of a water body like, structure of bed and banks, or natural flow, such as interrupted river and habitat continuity, disconnected wetlands, and altered water quantity and flow conditions. In the Danube Basin, the main causes of change are flood protection, hydropower generation, and navigation. 'Near natural hydromorphological conditions' are essential for meeting the WFD requirement of 'good ecological status'.

VISION FOR RIVER/HABITAT CONTINUITY AND MORPHOLOGICAL ALTERATIONS: Balanced management of structural man-made changes so the aquatic ecosystem functions holistically with all native species represented.

VISION FOR WETLANDS: Reconnection and restoration of wetlands throughout the basin.

VISION FOR WATER QUANTITY AND FLOW DYNAMICS: The natural development and distribution of the aquatic ecosystem are not negatively influenced by altered water quantity and flow conditions.

VISION FOR FUTURE INFRASTRUCTURE PROJECTS: Projects are conducted transparently using best environmental practices and best available techniques. Negative transboundary effects are fully prevented, mitigated, or compensated.

Groundwater

ISSUE:

A major drinking water source in most Danube countries which requires protection from pollution and over-use.

VISION:

Emissions of polluting substances do not cause any deterioration of groundwater quality. Water use is appropriately balanced and does not exceed the available resources.

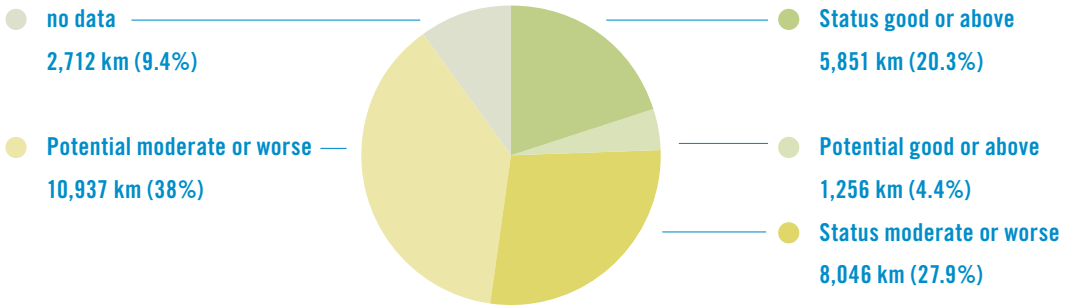
GROUNDWATER

Where we are now, and measures for 2021

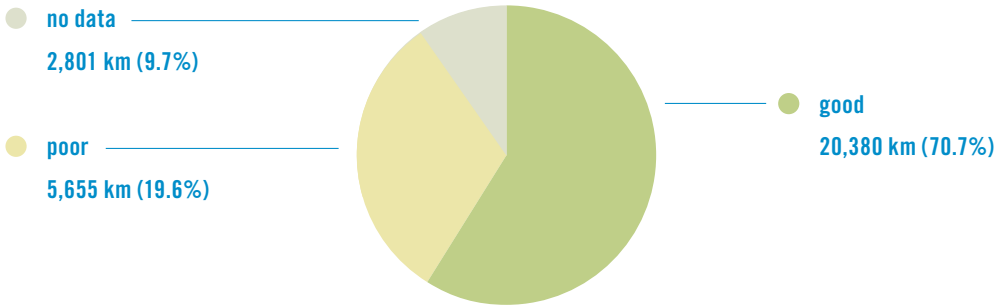
Ecological and chemical status

Rivers

Ecological status and ecological potential for river water bodies in the DRBD (indicated in length in km)



Chemical status for river water bodies in the DRBD (indicated in length in km)



The figures on the left do not include information on mercury in biota. Information on chemical status based on mercury in biota is presented in the Danube River Basin Management Plan (DRBM Plan).

The DRBM Plan also includes information on the ecological and chemical status of lakes, transitional and coastal waters.

Groundwater

23 national parts of the 11 transboundary groundwater bodies of basin-wide importance were analysed – 19 achieved good chemical status and 18 good quantitative status.

Improvements since the 2009 plan

As a result of the 2009 DRBMP and its measures, the basin experienced many improvements over the past six years – from reductions in pollution to improved hydromorphology – as the following examples show.

Wastewater collection and treatment

As wastewater from households and industry is a major source of pollution, its collection through urban sewer systems and treatment was a key measure. Since 2009, some 900 urban wastewater treatment plants were constructed or upgraded and an additional 1000 are still to come, of which half are currently under construction.

Surface waters

Organic pollution

– A reduction of organic emissions from urban waste waters by half from 2005 levels.

Nutrient pollution

– A decline of emissions – via point and diffuse sources – of nitrogen and phosphorus by approximately 10% and 30% respectively, leading to a significant reduction of transported nutrient loads to the Black Sea.

Hazardous substance pollution

– Reduction of information gaps, such as data on point source emissions of hazardous substances and the identification of Danube river basin-specific pollutants by the Joint Danube Survey 3.

Hydromorphological alterations

– More than 120 fish migration aids were constructed restoring the longitudinal continuity of rivers extending/opening the migration routes and improving access to relevant habitats.

– More than 50,000 ha of wetlands and floodplains were partly or totally reconnected and

– more than 50 measures for improving flow conditions and mitigating impacts of impoundments were implemented.

Groundwater bodies of basin-wide importance

– For the groundwater bodies of basin-wide importance failing to achieve good chemical status, new sewer systems were constructed and new legislation (e.g. extension of nitrate vulnerable zones) was developed.

– Groundwater bodies failing good quantitative status were addressed by new projects and new legislation as well.

2009 2010 2011 2012 2013 2014

Measures for 2021

Many remaining issues will be tackled until 2021. Here you find examples of key measures contained in the 2015 DRBMP.

Wastewater collection and treatment

Building and upgrading wastewater collection and treatment systems remains a key measure. Further investments will be made into sewer systems and treatment plants with at least 'secondary treatment' (to reduce organic pollution) and with 'tertiary treatment' (to reduce nutrient pollution) for larger agglomerations.

Surface waters

Organic pollution

– Reduce emissions from major urban, industrial and agricultural installations by application of best available techniques and permissions setting emission limits.

Nutrient pollution

– Further reduce nutrient pollution from agricultural sources through improved cooperation with the agricultural sector.

– Continue to introduce phosphate-free laundry and dishwasher detergents in the Danube countries.

Hazardous substance pollution

– Further reduce or phasing out priority substance emissions and continuation to regulate chemicals.

– Continue to close information gaps, such as the sources of chemical emissions.

Hydromorphological alterations

– Construction of 146 fish migration aids.

– Improving the morphological conditions and habitats by restoration measures in 77 water bodies.

– 15,130 additional ha of reconnected wetlands and floodplains, ensuring ecological flow requirements, ecological improvement of impoundments and addressing hydropeaking in more than 60 cases.

Groundwater bodies of basin-wide importance

– Eliminate or reduce nitrates and hazardous substances from entering groundwater bodies.

– Avoid over-abstraction through, for example, improvements of the control and permitting processes.

2015 2016 2017 2018 2019 2020 2021

Better together

In developing the 2015 DRBM Plan, the ICPDR actively involved stakeholders and citizens living throughout the basin. Public participation in river basin management is key to ensuring broad public support for the plan and efficiency in implementing its measures. It is also a legal requirement (WFD Art. 14).

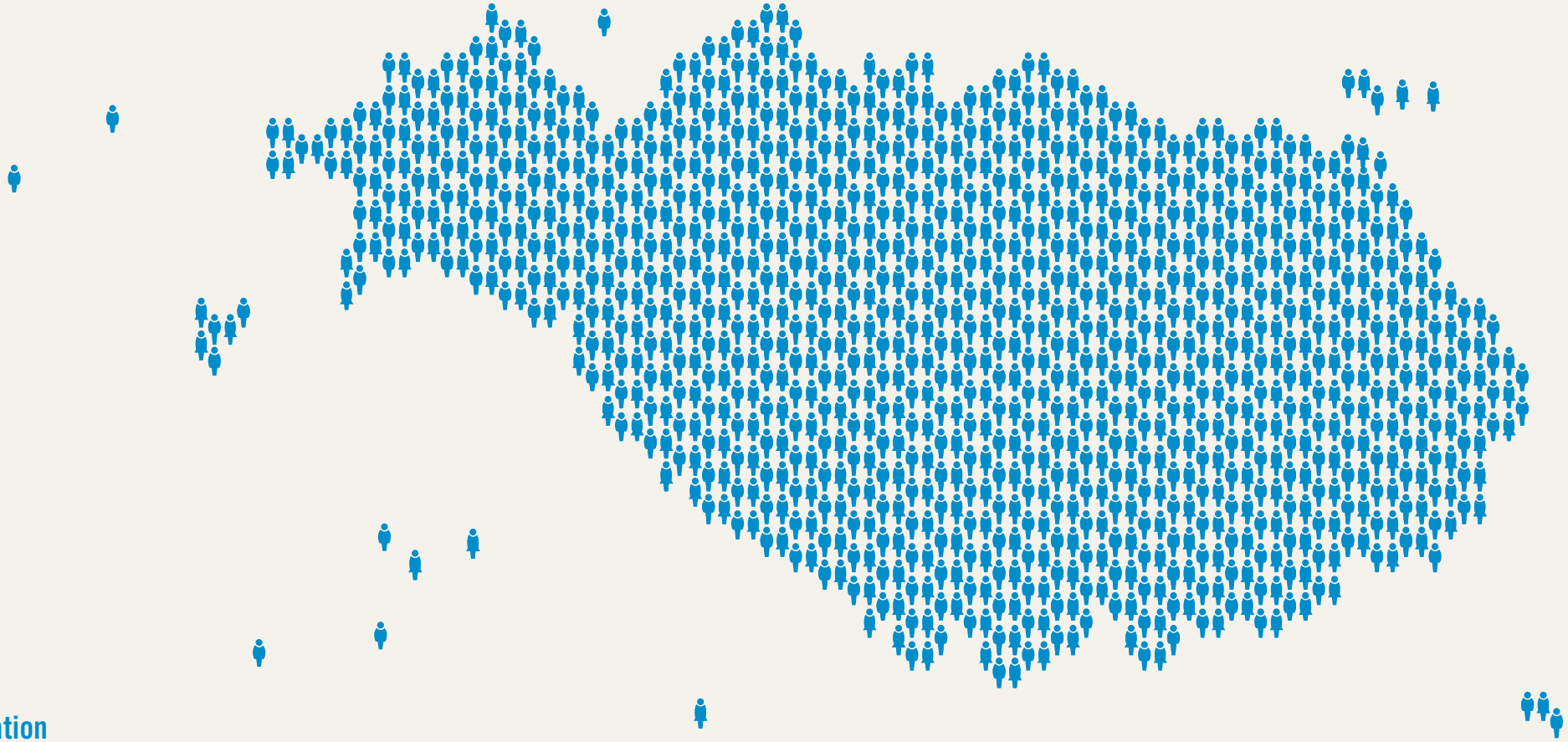
The ICPDR's stakeholder involvement includes both 'continuous' activities and special ones for the development of the management plans. The latter were pursued jointly with the public consultation for the Flood Risk Management Plan and you can learn more about them on page 10 in the Flood Risk Management Plan part of this brochure.

'Continuous' public participation activities include the work with observers, annually recurring outreach activities such as Danube Day, and information efforts such as the Danube Watch magazine.

The ICPDR has **23 observers** that represent a broad spectrum of water stakeholders in the basin including social, cultural, economic, and environmental interest groups. Each had the opportunity to contribute to the plans through relevant ICPDR expert group bodies and plenary meetings.

Danube Day is organised throughout the basin every year on 29 June. Drawing support from over 350 partner organisations, it conveys a positive message to tens of thousands of young people: rivers have become healthier thanks to hard work, this effort needs to be continued to allow everybody to enjoy them. Celebrations vary from one country to another, but usually include music and dance, water-sports and of course lots of interesting things to learn about rivers. The festivities are supported by the **Danube Art Master**, a creative competition and occasion for young Danubians to reflect about the value of rivers. The multi-lingual **Danube Box** teaching kit and the **Danube Adventure** online game help to further raise awareness for water among school children with the help from the private sector, especially Coca-Cola.

ICPDR information materials from the quarterly **Danube Watch** magazine to **technical reports** or **brochures** such as the one you are holding in your hands help educate the public. In addition to icpdr.org, the commission also maintains **websites** for special activities such as danubeday.org or danubesurvey.org.



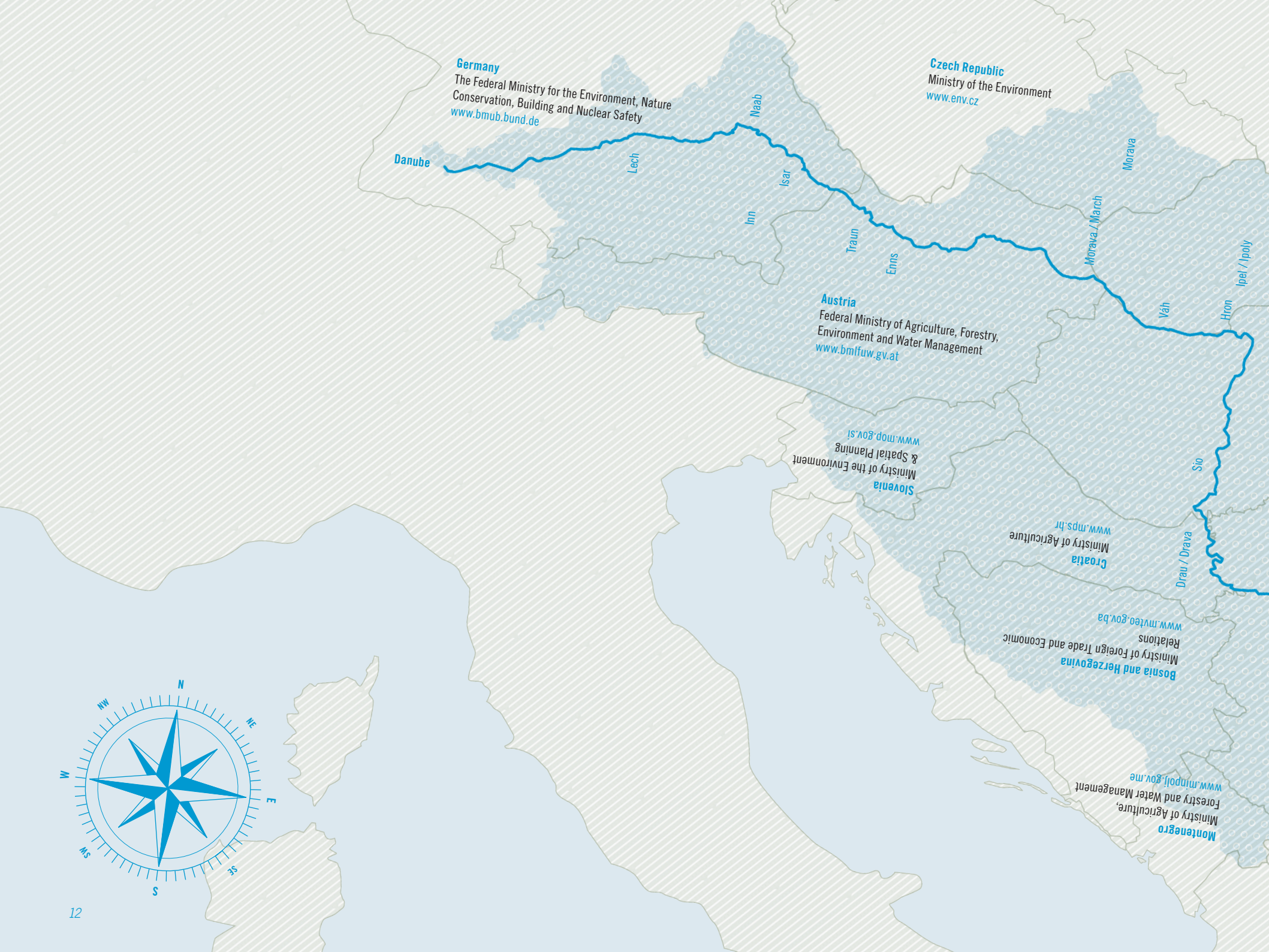
Integration

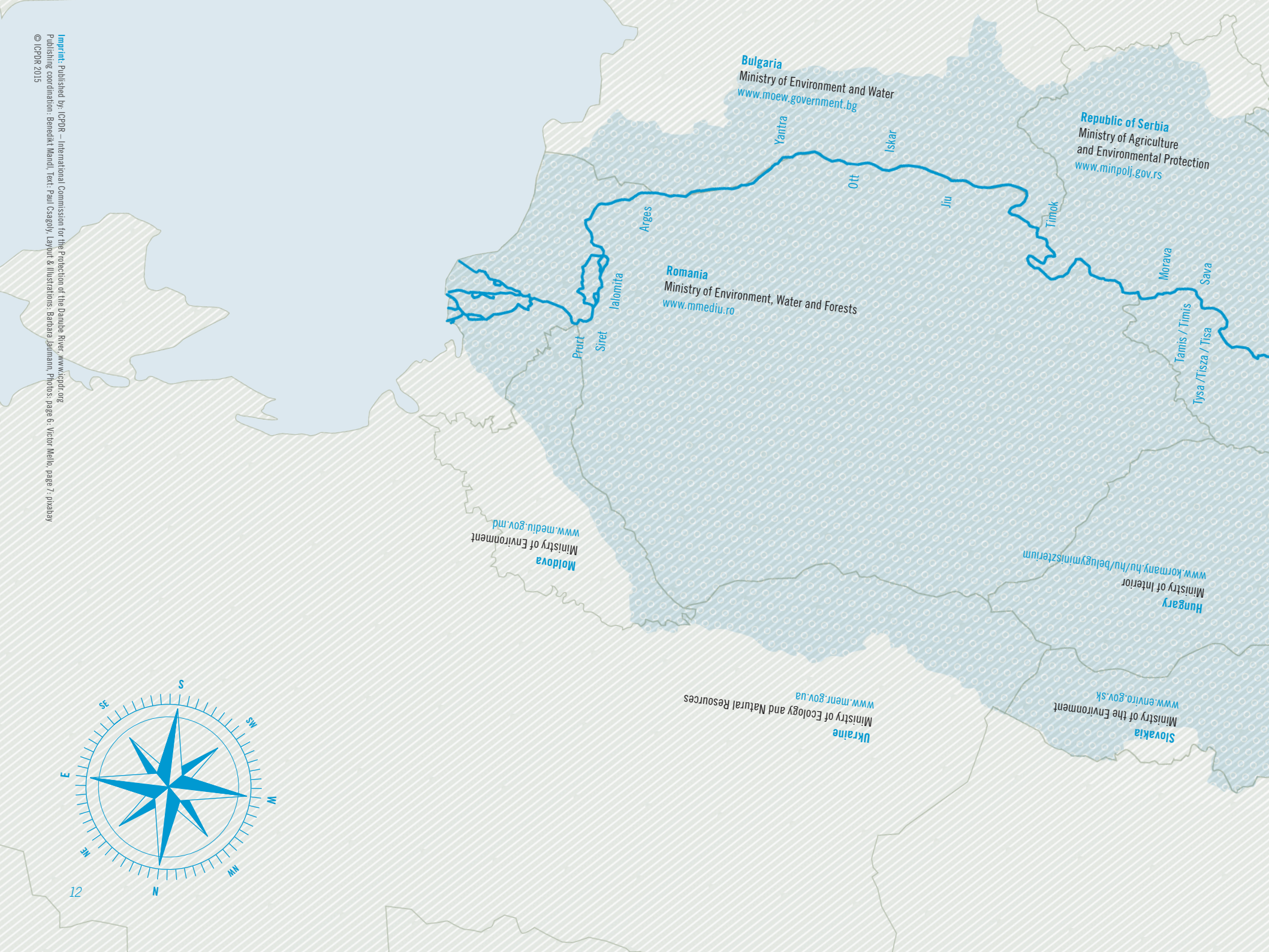
Stakeholder dialogues around inter-sectoral issues done since 2007, including inland navigation, hydropower, and adaptation to climate change, proved especially valuable for updating the DRBM Plan and FRMP.

Since 2007, the Joint Statement on Inland Navigation and Environmental Sustainability defines an innovative frame to balance environmental and economic interests in navigation projects, leading to an ongoing series of annual meetings.

Since 2012, the Climate Change Adaptation Strategy shows possible adaptation measures for the Danube River Basin, such as restoring water retention areas and increasing the efficiency of agricultural irrigation systems.

Since 2013, the Guiding Principles on Sustainable Hydropower help promote hydropower's positive contribution to renewable energy production and minimise negative environmental impacts for example on connectivity.


Germany
The Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
www.bmub.bund.de
Danube
Naab
Lech
Isar
Inn
Traun
Enns
Czech Republic
Ministry of the Environment
www.env.cz
Morava
Morava / March
Váh
Ipel / Ipoly
Hron
Austria
Federal Ministry of Agriculture, Forestry, Environment and Water Management
www.bmlfuw.gv.at
Slovenia
Ministry of the Environment & Spatial Planning
www.mop.gov.si
Sio
Croatia
Ministry of Agriculture
www.mps.hr
Drau / Drava
Bosnia and Herzegovina
Ministry of Foreign Trade and Economic Relations
www.mvteo.gov.ba
Montenegro
Ministry of Agriculture, Forestry and Water Management
www.minpolj.gov.me
N
NE
E
SE
S
SW
W
NW



Imprint: Published by: ICPDR – International Commission for the Protection of the Danube River, www.icpdr.org
Publishing coordination: Benedikt Mandl, Text: Paul Csagoly, Layout & Illustrations: Barbara Jaumann, Photos: page 6: Victor Mello, page 7: pixabay

The Danube Flood Risk Management Plan 2015–2021

icpdr iksd

International Commission for the Protection of the Danube River

Internationale Kommission zum Schutz der Donau

The Danube Flood Risk Management Plan: What & Why?

In August 2002, continuous heavy rains caused a massive flood that devastated large parts of the Danube River Basin – causing casualties, dispossessing thousands of people, and wreaking damage worth billions of Euros. Soon after in 2004, the ICPDR adopted its Action Programme for Sustainable Flood Prevention. And in 2009, the first overview of actions to reduce flood risk in the entire basin was published in the form of 17 sub-basin flood action plans.

EU-wide, the EU Floods Directive for the assessment and management of flood risks entered into force in 2007. It requires all EU Member States to: assess their water courses and coastal areas at risk of flooding; map flood extent and assets and humans at risk; and take measures to reduce flooding – in short, to develop basin-wide Flood Risk Management Plans.

In 2010, the contracting parties to the Danube River Protection Convention (DRPC) agreed to implement the EU Floods Directive and develop one international Danube Flood Risk Management Plan (FRMP) – coordinated by the International Commission for the Protection of the Danube River (ICPDR) and synergized with the EU Water Framework Directive and Danube River Basin Management Plan of 2015 (see brochure at back).

The ICPDR's Preliminary Flood Risk Assessment for the basin, published in 2012, found that Danube countries had kept flood records for centuries. Observed among the dusty pages was the 1501 flood on the upper Danube, the most famous, with extreme impacts as far as the Danube Bend at Visegrád. In 1838, ice jam-induced floods devastated settlements from Esztergom to Vukovar. In the 20th century, major flood events occurred in 1902, 1924, 1926, 1940, 1941, 1942, 1944, 1954, 1965, 1970, 1974, and 1991. The most significant this century occurred in 2002, 2006, 2010, 2013, and 2014.

The Preliminary Flood Risk Assessment presented the potential adverse consequences of future floods for human health, the environment, cultural heritage, and economic activity, such as deaths, displacements, and contamination. It also showed areas where potential significant flood risks continue to exist, and the impacts of climate change. The assessment was the basis for developing Danube basin flood hazard and flood risk maps in 2013, and the Danube FRMP in December 2015.

Floods this century

The August 2002 floods started with heavy rainfall in the Eastern Alps and flooding in Bavaria and Austria. Lower and Upper Austria and Salzburg suffered heavily with over 10,000 homes damaged and destroyed infrastructure costing over three billion Euros. In Hungary, some 2,000 people were evacuated and 4,370 homes were damaged. In northern Romania, the toll was 11 casualties, 1,624 flooded houses, and more than 1,000 km of destroyed roads and 567 bridges.

The 2009–2010 hydrological year (November to November) produced the largest amount of precipitation ever observed in many parts of the Danube basin. Most countries experienced considerable flooding with casualties and massive damages.

During the massive floods in June 2013 Danube water level at Passau reached the level comparable to an event 500 years ago. In Hungary the highest ever Danube water levels were observed. The flood caused 9 casualties and the cost of damages amounted to 2.4 billion Euros.

Disastrous floods occurred in May 2014 along the middle and lower parts of the Sava River Basin. New historical water level maxima were recorded on mid and lower Sava, as well as on its tributaries. 79 casualties, 137,000 evacuated people and damages of almost four billion Euros underlined again the need for an effective flood risk management.

Flood Hazard and Flooding Scenarios

Legend

Flood Hazard Areas (FHA)

	MEDIUM probability	LOW probability	Preliminary FHA data
FHA >= 100km²	■	■	—
FHA <100km², on river stretches >= 50km	—	—	—
FHA <100km², on river stretches < 50km	•	•	•

- No FHA data provided
- Danube River Basin District
- Danube River
- Tributaries (with catchment area > 4,000 km²)
- Lake water bodies (with surface area > 100 km²)
- Transitional water bodies
- Coastal water bodies
- Canals
- National borders

Cities:

- 100,000 - 250,000 inhabitants
- 250,000 - 1,000,000 inhabitants
- > 1,000,000 inhabitants

0 50 100 200 km

(Scale 1: 6,000,000 in A4 landscape paper format)

FHA data for the Danube floodplain in BA, RO and RS was taken from the Danube Floodrisk Project. FHA data for Velika Morava floodplain in RS was taken from the SOFPAS 1 project. FHA data for SI was provided for 11 out of 21 relevant flood hazard areas (based on wathershed size and national importance criteria). This ICPDR product is based on national information provided by the Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU , ME, MD, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data from EuroGeographics was used for all national borders except for AL, BA, ME where the data from the ESRI World Countries was used; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as elevation data layer; data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL. Vienna, November 2015

Where are we now? Hazard and risk mapping.

Flood hazard and risk maps show the potential adverse consequences of different flood scenarios. They serve as an effective tool for information and a valuable basis for priority setting and technical, financial, and political decisions regarding flood risk management.

The Summary Report on implementation of Article 6 of the European Floods Directive in the Danube River Basin District (see www.icpdr.org) provides an overview of methods used at the national level for preparing flood hazard and risk maps in the Danube basin countries. Links to maps and other relevant documents are also included.

Flood hazard map

The ICPDR agreed that two scenarios for flood hazard areas – with medium and low probabilities – are relevant for the level of the Danube River Basin (DRB). Almost all of the medium probability floods are based on a 100-year recurrence period. Overall, the medium probability hazard area covers 32,128 km^2 in the basin.

The recurrence period of floods with low probability (or 'extreme events') varies mostly from 300 to 1000 years. Overall, the low probability hazard area covers 51,146 km^2 in the basin.

The flood hazard map was prepared at the scale of 1:4,500,000 with the goal of providing a general overview for the entire basin. For more detailed information, such as flow velocity and depth, please view the national maps www.icpdr.org/main/national-frm.

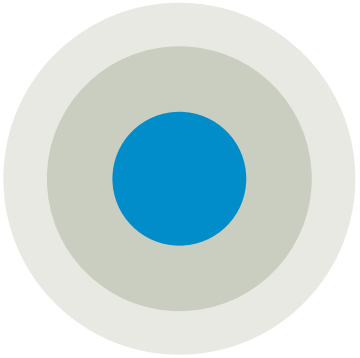
Flood risk maps

Risk and population map:

shows the population affected by floods with low, medium, and high probabilities in the parts of the countries belonging to the basin.

People:

- Floods with high probability affect at least 936,000;
- floods with medium probability affect at least 3,721,000;
- and floods with low probability affect at least 6,734,000.



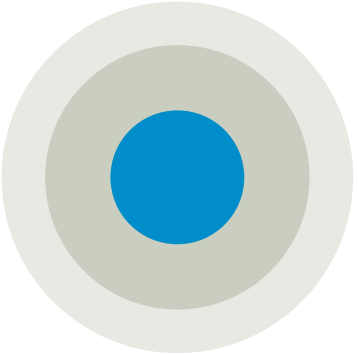
Risk and economic activity maps:

display the share of inundated area by class of economic activity for low, medium, and high probability floods. Agricultural areas have the major share, followed by the category "others" which combines a number of various activities. Approximately 29,000 km^2 of agricultural areas are affected by low probability floods in the basin.

Significant proportions of urban areas are affected by low probability floods in Austria, Bosnia and Herzegovina, Slovakia, and Czech Republic.
The largest urban area affected by low probability floods is in Hungary (783 km^2).

Risk and installations map:

shows the potential that IPPC and Seveso installations (the installations containing polluting substances) will be affected by floods with low, medium, and high probability in the parts of the countries belonging to the basin.

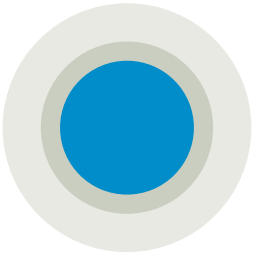


Installations containing polluting substances:

- Floods with high probability affect 146;
- floods with medium probability affect 337;
- and floods with low probability affect 617.

Risk and WFD protected areas maps:

1) Shows low probability flood hazard areas that overlap Natura 2000 protected areas (nature protection areas in the territory of the European Union, which are made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive).
2) Displays the total numbers of areas designated for the abstraction of water intended for human consumption under WFD Article 7, and of the water bodies designated as recreational waters (e.g. bathing waters), that are potentially affected by floods with low, medium and high probability in the parts of the countries belonging to the basin.



Drinking water and recreational water areas:

- Floods with high probability affect 241;
- floods with medium probability affect 413;
- and floods with low probability affect 796.


70

AVOID NEW RISKS

Visions for 2021

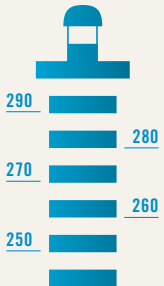
The Floods Directive requires Member States to establish objectives for managing flood risks in the areas shown in the flood hazard and risk maps. These objectives must reduce the potential adverse consequences of flooding for human health, the environment, cultural heritage, and economic activity. They should also address all aspects of flood risk management including prevention, protection, and preparedness. Objectives are achieved through measures.

The Danube FRMP presents an overview of measures that countries will take (with national examples) sorted according to the objectives, while the detailed descriptions of all planned measures is presented in the national flood risk management plans.

1. Avoid new risks

when planning and implementing activities, such as for: urban, rural, and industrial development and construction; agriculture; forestry; energy; and transport. Activities should not increase the risk of flooding. Downstream impacts from upstream activities should be avoided, as should the building of new structures in flood-prone areas.

Slovenia: Since 2008, investors are required to map flood hazards in their project plans. Legal restrictions limit construction in flood-prone areas.



STRENGTHEN

2. Reduce existing risks

through measures such as: prevention (e.g. removing structures from floodplain areas); protection (e.g. restoring former floodplains); water flow regulation (e.g. dams and reservoirs); or surface water management (e.g. catching rainwater).

Hungary: To improve flood safety on the Tisza River, the Vasarhelyi Plan aims to reduce by 1 metre the 1000-year flood, through constructing 11 reservoirs with a capacity of 1,500 million m^3.

Croatia: The advantage of the natural functions of wetlands to supplement the existing flood control infrastructures was utilized in the Lonjsko Polje Nature Park where 23,706 ha are used as natural water retention area.

RESILIENCE

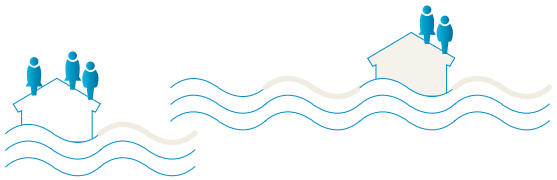
3. Strengthen resilience;

or the ability to cope before, during, and after a flood through, for example: flood forecasting (e.g. using radar and satellite imagery), emergency response planning, training flood authorities, and disaster assistance (e.g. financial, legal, and unemployment).

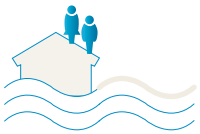
Romania-Ukraine-Moldova: A new monitoring system with automatic stations was developed in the Siret and Prut sub-basins to reduce the vulnerability of communities in border areas.

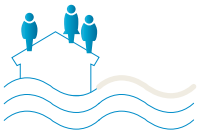
Serbia: During the devastating 2014 flood, the Ministry of Interior established a Flood Emergency Headquarters and received support from the EU, UN, and 13 countries (e.g. for rescue and food delivery).

EU-wide: To support preparedness measures, the **European Flood Awareness System (EFAS)** presents the likelihood of floods with up to 10 days notice.



SOLIDARITY PRINCIPLE





4. Raising awareness,

by communicating simple information about flood risks and options for adapting to floods through, for example: flood risk maps, emergency plans, training on flood preparedness, and the involvement of the media.

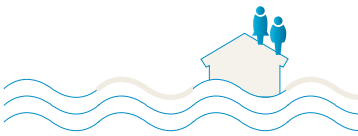
Austria: The **Flussdialog** (dialogue on rivers) project was applied to 13 rivers and reached an estimated 550,000 people in Austria and Bavaria. It involves consultations with numerous stakeholder groups, such as: policy; administration; economic sectors such as fisheries and energy supply; nature conservation; and the public.

Slovakia: The Ministry of Environment had special conferences for many stakeholders, seminars for municipalities, warnings on its website, and TV announcements.

5. Solidarity principle,

to prevent the export of flood risks to neighbouring countries through, for example: retaining rainfall on the spot; storing excess water locally; and transboundary cooperation that enables a rapid exchange of flood data.

Slovakia-Hungary have a bilateral treaty that defines the operation of the Polder Besa, a dry reservoir built to decrease extreme flood levels in Slovakia's Medzibodrozie area and Hungary's Bodrog River catchment. Its inundated area is 1,568 ha and volume is 53 mio. m^3.



Better together

In developing the Danube Flood Risk Management Plan, the ICPDR involved stakeholders and citizens through 'continuous' and 'special' activities. You can read more about the continuous public participation on page 10 in the Danube River Basin Management Plan part of this brochure.

'Special' activities ensured the consultation of the public throughout the development of the management plans over three years, in particular on

1) a timetable and work programme;
2) flood hazard and risk maps as well as significant water management issues; and
3) the draft management plans. Each of these steps was promoted through the ICPDR network and publications both online and in print and even advertised in selected relevant media.

The most important stage was the **public consultation on the draft management plans** leading to their finalisation in December 2015. Activities included collecting comments in writing, a stakeholder workshop, online questionnaires, and a social media campaign.

To consult the public beyond the observers, the ICPDR published all relevant documents, including basin-wide draft plans and links to national documents and processes, online for review. It encouraged stakeholders and citizens to submit comments (16 often very elaborate comments were received), and had two online surveys (200 were filled out) about river basin management and flood risk management to highlight their inter-linkages. For example, the flood-related survey asked about public perceptions around personal awareness of flood hazard exposure and the clarity of the flood hazard map.

In July 2015, the Voice of the Danube – Stakeholder Consultation Workshop was held. Some 80 stakeholders with diverse backgrounds, such as hydropower specialists, biodiversity experts, and corporate representatives, expressed their views about both plans. In addition, national consultation results were integrated into the basin-wide inputs through a basin-wide exchange in the ICPDR Expert Groups.

Cooperation to reconnect floodplains

Similar to the ICPDR's inter-sectoral efforts for managing the impacts of navigation, climate change, and hydropower in the Danube River Basin Management Plan, the Flood Risk Management Plan includes measures aimed at encouraging stakeholder dialogue and balancing interests around floodplain reconnection.

Over the last 200 years, nearly 80% of the basin's natural wetlands and floodplains were disconnected from rivers to support activities such as flood control, navigation, and hydropower generation. Not only did this cause many negative ecological impacts; it also worsened flooding in many cases. More recently, our awareness of the multiple benefits of floodplains – for example, naturally retaining flood waters, moderating extreme events, and reducing water pollution – has increased.

Through the Flood Risk Management Plan, the Danube countries now maximise win-win synergies further and work towards truly integrated water management.