DANUBE WATCH

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International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau

12
Vienna, Austria
The adoption of the Danube Declaration highlighted the significance of the ICPDR as the main coordinating mechanism for transboundary water management in the Danube River Basin.

22
Morava Sub-basin
Motivated by one of the worst droughts in the country's history, the Czech Republic is taking an intersectoral – and an international – approach to developing long-term strategies to protect against water scarcity in the future.

20
Budapest, Hungary
A new online adventure game, designed in Hungary, lets children explore the Danube River through a clever combination of quiz and skill challenge, all from their smartphone or computer screen.


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Dear readers,

Countries are making progress in managing disaster risks, but many are still suffering major economic and social losses as a result of natural disasters. In the past 15 years, countries of the Danube River Basin have been hit by five major floods which have devastated lives and destroyed houses, roads and bridges. In May 2014, floods along the Sava River resulted in 79 casualties, 137,000 people being evacuated and damages of almost €4 billion.

These human tragedies underline the need for coordinated action. The work of the Organisation for Economic Co-operation and Development (OECD) highlights that most water crises are foremost "governance" crises. The case for countries to work together is particularly compelling when risks extend across borders, however cooperation amongst governments raises the question of what to do, who takes action, at which level and how.

The OECD contributes to this debate in three ways. We carry out water policy dialogues and risk management reviews to support reforms at basin, metropolitan or national level. We have also produced high-level policy guidance and standards to mainstream and implement effective policies. The OECD also convenes decision-makers and stakeholders to share good practices, through our High Level Risk Forum, as well as our OECD Water Governance Initiative.

The OECD's efforts offer a strong complement to the ICPDR's work in fostering better policies for better lives. The Danube River Basin Management Plan, for example, aligns with the OECD Principles on Water Governance, and the Danube Flood Risk Management Plan also mirrors the OECD Recommendation on the Governance of Critical Risks. However, producing, sharing and diffusing evidence on effective flood risk management policies will be essential to implement sound policies, and the OECD's work has previously helped countries strengthen their risk policies through peer reviews and international benchmarks.

Further, the ICPDR and OECD share the common goal of helping create conditions for better and more resilient economic growth. We aim to reduce economic vulnerability to flood disasters and reap the full benefits of sustainable water management. We stand ready to work with the ICPDR, to build more resilient and sustainable societies and economies.

Mari Kiviniemi,
Deputy Secretary-General, OECD
Former Prime Minister of Finland

For a free subscription to Danube Watch, or to contribute to Danube Watch, please contact icpdr@unvienna.org

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Danube Watch is the official magazine of ICPDR, the International Commission for the Protection of the Danube River. Danube Watch enhances regional cooperation and information sharing on sustainable water management and environmental protection in the Danube River Basin. It reports on current issues affecting the Danube Basin, and on action taken to deal with challenges in the river basin. Striving for scientific accuracy while remaining concise, clear and readable, it is produced for the wide range of people who are actively involved in the Danube River Basin and are working for the improvement of its environment.

DANUBE ART MASTER FILM PREMIERED AT MINISTERIAL MEETING

The 'voice of the Danube's future' was heard at the ICPDR Ministerial Meeting on 9 February 2016, where a video highlighting the importance of the next generation for planning long-term sustainable water management premiered. The clip featured young artists participating in the Danube Art Master competition, a creativity contest organised by the ICPDR and Global Water Partnership in the frame of the Green Danube Partnership with the Coca-Cola System last year. The clip voiced a need to continue the hard work towards making rivers and lakes more enjoyable for everyone.

See the video at: https://www.youtube.com/watch?v=6hc59j0BI2o

STURGEON 2020: SECOND EDITION AVAILABLE

Sturgeon 2020 is a programme for the protection and rehabilitation of Danube sturgeons and second edition of the plan has been published has been published with support from the ICPDR. The Sturgeon 2020 plan was developed in 2013 by the Danube Sturgeon Task Force (DSTF), an umbrella for organisations and individuals concerned with sturgeon conservation in the Danube Basin. Since the programme launched, the ICPDR has adopted the sturgeons as flagship species, because they can be seen as indicators of healthy rivers. This understanding is shared by the EU Strategy for the Danube Region, which backs the work of the DSTF via its Priority Area 6 – biodiversity, landscape diversity and soil. The programme can be downloaded from icpdr.org or ordered in print from the ICPDR Secretariat.

Download link: www.icpdr.org/main/activities-projects/sturgeons

LIFE PROJECT LAUNCH: VIENNA WELCOMES STERLETS UPON RETURN

The Life Sterlet project has been launched in Vienna. Over the course of the next five years, a breeding station will be established at Vienna's Donauinsel Island; annual restocking will take place; critical habitats will be identified with guidance for their conservation; and a management plan for sterlets in the Upper Danube region will be developed. The project area will comprise the last two free-flowing segments of the Austrian Danube (Wachau and the stretch downstream of Vienna's Freudenau hydropower plant) as well as specific locations along the Morava. The project is led by BOKU University of Life Sciences and Natural Resources, the City of Vienna and the Institute of Zoology of the Slovak Academy of Sciences. The EU Life programme will provide 60% of the project's costs

Visit the Life Sturgeon website (in German, an English version is under preparation): life-sterlet.boku.ac.at

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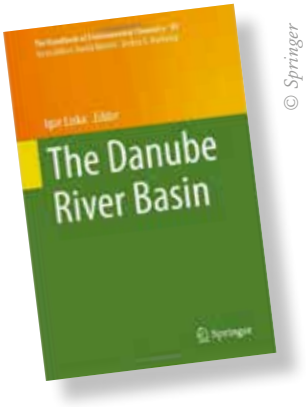
SEGURA RIVER OF SPAIN WINS IRF EUROPEAN RIVERPRIZE 2016

The Segura River of Spain won the International RiverFoundation's 2016 European Riverprize. The award ceremony took place in Vienna's city hall for the third time since the award's establishment in 2013. The Segura River Project has restored the health of the river with advanced wastewater schemes now supplying reclaimed water to the agriculture industry. The once polluted and water-stressed river in Europe's driest basin has been transformed from an exposed sewer to a healthy, vibrant river, home to otters, migratory birds, and other flora and fauna. The ICPDR, which helped establish the European RiverPrize in 2013, congratulates the winning basin.

For more information on the European Riverprize, please visit: https://www.riverfoundation.org.au/riverprize_european.php

'THE DANUBE RIVER BASIN' HANDBOOK ON WATER QUALITY PUBLISHED



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The new book 'The Danube River Basin' offers a comprehensive review of the chemical, biological and hydromorphological quality of the Danube. The first part examines the chemical pollution of surface waters, focusing on organic compounds (with special emphasis given to EU Water Framework Directive priority substances and Danube River Basin specific pollutants), heavy metals and nutrients. Attention is also given to pollution of groundwater and drinking water resources by hazardous substances and to radioactivity in the Danube. The second part highlights the biology and hydromorphology of the Danube. It focuses on benthic macroinvertebrates, phytobenthos, macrophytes, fish, phytoplankton as well as microbiology, with chapters dedicated to gaps and uncertainties in the ecological status assessment and to invasive alien species. Further chapters on hydromorphology, sediment management and isotope hydrology complete the overall picture of the status of the Danube. ICPDR Technical Expert Igor Liska is the editor of the book that was published by Springer.

Learn more about this book at: www.springer.com


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MIND THE GAP: SCIENCE AND POLICY DISCUSSED IN VIENNA

In the frame of the Managing Aquatic Ecosystems and Water Resources under Multiple Stress (MARS) project, a group of 60 water management professionals met to discuss the key challenges for freshwater management and policy across Europe. The workshop was held in Vienna in early April to discuss the challenge of multiple pressures: the often unpredictable interactions between individual pressures on freshwaters, such as pollution, floods, droughts and river bank alterations. The findings of MARS should help to improve river basin management in Europe.

Learn more about the workshop at: http://mars-project.eu/index.php/vienna-stakeholder-workshop.html


FOCUS ON
MINISTERIAL MEETING
9 FEBRUARY 2016

Over 80 million people reside in the Danube River Basin, with many depending on its diverse uses, such as drinking water, energy production, agriculture, and transport. The new Danube River Basin Management Plan - Update 2015 aims to further protect and enhance the status of all waters, to prevent their deterioration and to ensure the sustainable, long-term use of water resources.

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NEW JOINT PROGRAMME OF MEASURES 2015–2021

In addition to updated assessments of pressures and information on water status, the Danube River Basin Management Plan – Update 2015 includes further actions agreed by the Danube countries to be undertaken by 2021.

Organic Pollution
↗ Vision: Zero emissions of untreated wastewater.
↗ Action: Reduce emissions from major urban, industrial and agricultural installations by applying best available techniques and setting emission limits.

Nutrient Pollution
↗ Vision: Balanced management so neither the Danube Basin nor the Black Sea is affected by eutrophication.
↗ Action: Improve cooperation with the agriculture sector to further reduce nutrient pollution and continue to introduce phosphate-free detergents in Danube countries.

Hazardous Substances Pollution
↗ Vision: No risk or threat to human health or aquatic ecosystems.
↗ Action: Reduce or phase out priority substance emissions and continue to close information gaps.

Hydromorphological Alterations
↗ Vision: Balanced management of structural man-made changes so the aquatic ecosystem functions holistically with all native species represented.
↗ Action: Build 146 additional fish migration aids, restore habitats in 77 water bodies and reconnect and improve the hydrological regime of over 15,000ha of wetlands.

Groundwater Bodies
↗ Vision: Pollution emissions do not deteriorate groundwater quality and water use is appropriately balanced and does not exceed available resources.
↗ Action: Prevent nitrates and hazardous substances from entering groundwater bodies, and improve the control and permitting processes to avoid over-abstraction.

A new plan for the Danube's future

Rivers, lakes and groundwater are vital natural resources, but many of these resources are environmentally damaged or under threat. To protect these shared waters of the Danube River Basin, the ICPDR countries have committed to a Joint Programme of Measures under the new Danube River Basin Management Plan – Update 2015.

At the Fürstenberg Palace in the Black Forest of Germany, an elegant stone basin cradles the historic source of the Danube River with a group of statues representing the "Mother Baar" showing her daughter, the young Danube, the way to the Black Sea. And although sometimes it rushes and sometimes it meanders, the Danube always knows where it's going. And now – thanks to an updated management plan for the future of the basin – we do too.

The Danube River Basin Management Plan (DRBMP) – Update 2015 has been published for the period from 2015 to 2021 with assessments of the progress achieved and new measures to protect and improve the waters of the Danube River Basin.
This management plan is one of the requirements of the EU Water Framework Directive (WFD), which aims to make all waters cleaner and healthier – and achieve good 'chemical and ecological status (or potential)' for all inland surface waters, transitional and coastal waters, and to achieve good 'chemical' and 'quantitative status' for groundwater.

To meet these objectives, the ICPDR's DRBMP focuses on four significant water management issues, or the main pressures that affect water status: pollution by organic substances, pollution by nutrients, pollution by hazardous substances and hydromorphological alterations. In addition, it addresses issues specifically related to transboundary groundwater bodies: quality and quantity.

Cross-cutting issues. The waters of the Danube cross more than just political boundaries; they cross separate sectors and industries – touching the lives of millions across the basin. The ICPDR's stakeholder dialogues on cross-cutting issues, therefore, have been critical in updating the DRBMP.

Since 2007, the Joint Statement on Inland Navigation and Environmental Sustainability has defined a framework for balancing environmental and economic interest in navigation projects. From 2012, the ICPDR Climate Change Adaptation Strategy has provided guidance on measures such as restoring flood plains and improving irrigation practices. Finally, the Guiding Principles on Sustainable Hydropower, published in 2013, have helped promote hydropower's positive contribution to renewable energy production while minimising negative environmental impacts.

Supporting efforts across the basin. The updated DRBMP also creates links with new EU policies, such as the Marine Strategy Framework Directive, to manage the impacts of the river on the Black Sea. In addition, the EU Floods Directive and the First Danube Flood Risk Management Plan, which was also published in December, provides managers of both river basins and flood risks with a platform to work together for the sustainable protection of the Danube Basin's population and economies. For more information about the Flood Plan, see the article on page 9.

Furthermore, the DRBMP contributes to efforts to protect sturgeons – considered a flagship species for the region. As a long-distance migratory species, their survival relies on many aspects of river basin management. Several of the measures outlined in the DRBMP target sturgeon recovery by reducing pollution, establishing migration routes, improving habitats and helping to ensure the sustainability of future infrastructure projects.

Getting the public involved . The updated plan is also the result of a long process of public consultation with stakeholders and citizens living in the basin.

During the first half of 2015, stakeholders were actively called to comment on the draft management plan in writing and through online questionnaires.

It is not enough for a river to only have clean water without anything living in it; the Danube River Basin Management Plant - Update 2015 aims to ensure that river beds and banks are well structured to provide migration routes and suitable habitats for animals and plants to live in good health.

The keystone of the entire process was a Stakeholder Consultation Workshop which brought together over 80 experts from public, corporate, NGO and academic institutions. All of the issues raised were then addressed by the relevant expert or task group and included in a final consultation report on the process to ensure complete transparency.

Looking to the future. Much progress has been made since the first DRBMP, and surveys and investigative monitoring ensure that the measures and their impacts are continuously reviewed to be certain of effectiveness. The WFD requires countries to produce updated river basin management plans every six years. The third implementation cycle of the WFD will require the DRBMP to be further updated by 2021, leading to long-term improvements in the Danube River Basin by 2027.

Kirstie Shepherd is a freelance journalist living in Vienna and has called the Danube River Basin home since 2000.

PROGRESS SINCE 2009

The Danube Basin has improved significantly over the past six years, as a result of the Danube River Basin Management Plan (DRBMP) and its measures. The first DRBMP was published in 2009 and implemented until 2015.

Organic Pollution: The construction of urban wastewater treatment plants has contributed to a huge reduction of organic emission from urban wastewaters – nearly 50%.

Nutrient Pollution: Total nitrogen emissions have decreased by 12% while total phosphorus emissions have decreased by 34%.

Hazardous Substances: Danube countries have reduced information gaps, such as data on point source emissions, and the Joint Danube Survey 3 has identified Danube River-specific pollutants.

Hydromorphological Alterations: Over 50,000ha of wetlands and floodplains have been partly or totally reconnected and 120 fish migration aids have been built to open migration routes and improve access to habitats.

Groundwater: New sewer systems have been constructed for groundwater bodies failing to achieve good chemical status, and new projects and legislation have been developed to address good chemical and quantitative status.

Danube Flood Risk Management Plan – the basin-wide pioneer in protection

Although floods are natural events and part of the natural water cycle, they cause massive damage and risk to human lives. A new management plan adopted this February will provide a means for basin-wide efforts to prevent, protect and prepare for floods.

The Danube Flood Risk Management Plan aims to improve prevention, protection and preparedness activities for extreme floods, like the one in 2014 that forced the evacuation of residents in Prud, Bosnia and Herzegovina.

The Danube River Basin has been the site of many disastrous floods in the past – recent massive floods occurred in 2002, 2006, 2010, 2013 and 2014. From its beginnings, the ICPDR has made flood prevention a priority, and the Danube River Protection Convention recognised the threat when it was signed in 1994. In 2004 the ICPDR adopted the 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 Floods Directive. The EU Floods Directive came into force in 2007, requiring all EU Member States to assess water courses and coastal areas at risk of flooding; map flood extent, assets and humans at risk; and take measures to reduce flooding. In 2010, the ICPDR agreed to implement the EU Floods Directive and develop an international Danube Flood Risk Management Plan (DFRMP) – coordinated by the ICPDR and synergised with the EU Water Framework Directive and the Danube River Basin Management Plan (DRBMP).

Flood hazard and flood risk maps. The DFRMP reviews the conclusions of the preliminary flood risk assessment and maps the areas of potential significant flood risk as well as flood hazards and flood risks of the Danube River Basin District. These maps show the potential adverse consequences associated with various flood scenarios and serve as an effective tool for information, as well as a valuable basis on which to set priorities and plan further technical, financial and political decisions regarding flood risk management. The ICPDR agreed that two scenarios are rel-

The measures described in the DFRMP address all phases of the flood risk management cycle and focus particularly on prevention (preventing damage caused by floods by avoiding construction of houses and industries in present and future flood-prone areas or by adapting future developments to the risk of flooding), protection (by taking measures to reduce the likelihood of floods or the impact of floods in a specific location such as restoring flood plains and wetlands) and preparedness (providing instructions to the public on what to do in the event of flooding).

evant for the flood hazard map at the level of the international river basin district – flood hazard areas with medium and with low probabilities. The medium probability floods are almost unanimously based on a 100-year recurrence period while the recurrence period of floods with low probability varies mostly from 300 to 1000 years. Overall, the medium probability hazard area covers 32,128 km^2 in the basin while the low probability hazard area covers 51,146 km^2 in the basin.

The DFRMP includes a number of flood risk maps, showing the population numbers affected by floods, the share of inundated areas by class of economic activity and the potential that the EU Integrated Pollution Prevention and Control Directive and Seveso installations (containing

PLAN OBJECTIVES

The EU 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.

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

Reducing existing risks through measures for prevention (such as removing structures from floodplain areas), protection (restoring former floodplains), water flow regulation (dams and reservoirs) or surface water management (catching rainwater).

Strengthening resilience before, during, and after a flood through measures like flood forecasting (such as using radar and satellite imagery), emergency response planning, training flood authorities and disaster assistance (financial and legal, and for the unemployed).

Raising awareness by communicating basic information about flood risks and options for adapting to floods, such as flood risk maps, emergency plans, training on flood preparedness and the involvement of the media.

Applying the solidarity principle to prevent exporting flood risks to neighbouring countries by activities such as retaining rainfall on the spot, storing excess water locally, and transboundary cooperation that enables a rapid exchange of flood data.

polluting substances) or the protected areas in the basin will be affected by floods.

Flood risk mitigation measures. To avoid overlap with national plans, the ICPDR agreed that the DFRMP will present only the strategic level measures reflecting activities at the international basin level – this includes measures with a transboundary effect and measures applicable in more countries of the basin. To better demonstrate the key actions of basin-wide importance the measures presented in the DFRMP are combined with the examples of best practices. Annex 2 of the plan lists specific pursuits that consider the initiatives of the EU Strategy for the Danube Region (EUSDR) as well. The projects or project proposals presented in Annex 2 were developed by the ICPDR and/or EUSDR Priority Area 5 and reflect the objectives and priorities set in the DFRMP, have a transboundary character and support the implementation of the needs listed among the measures.

Links to Water Framework Directive. Flood risk management has the greatest potential for synergies with other aspects of water management, provided that adequate strategies are implemented, as traditional engineering solutions (dams, channelisation or dykes) may not always deliver the expected results. In addition, the occurrence of floods may not be reduced completely and the consequences of future floods are likely to have an increasingly social and economic impact. Moreover, floods are a natural phenomenon and high probability floods can have obvious benefits for society and ecosystems, such as for groundwater recharge or fish production. Therefore the DFRMP now promotes another approach of flood risk management – that of integrated flood risk management focusing on prevention, protection and preparedness (including forecasting). In this framework, making space for river and coastal flooding in the areas where human and economic stakes are relatively low is a more sustainable way of dealing with floods. Conservation and restoration of the natural functions of wetlands and floodplains, with their ability to retain floodwaters and reduce the flood pulse, are key features of this strategy, thus allowing important opportunities for synergies with WFD implementation.

Although natural phenomena, floods cause widespread damage, health problems and even deaths - especially where rivers have been cut off from their natural floodplains, are confined to man-made channels, and where houses and industrial sites have been constructed in areas that are naturally liable to flooding.

Danube Flood Risk Management Plan goes public. At the end of 2014 the DFRMP became available for public consultation on the ICPDR website. A public participation workshop took place in Zagreb in the beginning of July 2015 and brought together over 80 stakeholders from a broad range of backgrounds. Input from the workshop was collected in parallel with the internet-based consultation (Facebook, Twitter, public messages), which gathered more than 50 written comments. Following this public consultation process, the DFRMP was finalised and adopted by the ICPDR in December 2015. Afterwards the ministers and high-level representatives responsible for water management from the Danube River Basin countries and the European Commission endorsed the Danube Flood Risk Management Plan at their meeting on 9 February 2016 in Vienna. They also adopted the Danube Declaration in which they committed to implement the measures of the DFRMP and the national flood risk management plans.

The DFRMP is not only the first technical framework document to address flood risk management over the whole Danube River Basin but also a very useful tool to coordinate and harmonise the national flood risk management practices between Danube countries. It must be highlighted that all of the achievements in managing flood risk sustainably in the Danube River Basin District are the result of a very close and productive cooperation of the Danube flood experts working in the frame of the ICPDR Flood Protection Expert Group. The efficient work of this international body of experts is a prerequisite for proper implementation of the DFRMP in the future.

DID YOU KNOW?

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

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

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

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

Download the plan: http://icpdr.org/main/management-plans-danube-river-basin-published.

Igor Liska is the technical expert for Water Quality and Water Management at the ICPDR Secretariat.
Károly Gombás is with the North Trans-Danubian Water Directorate (ÉDUVIZIG) Győr, Hungary and Chairperson of the ICPDR Flood Protection Expert Group.

The Danube Declaration highlights the significance of the ICPDR as the main coordinating mechanism for transboundary water management in the Danube River Basin.

FOCUS ON
MINISTERIAL MEETING
9 FEBRUARY 2016

Danube Declaration 2016: a vision for the river basin

In December last year, the ICPDR adopted two management plans that will be the roadmap for the work of the commission until 2021. A complex system such as a river, however, requires visionary steering beyond work programmes. This visionary steering will be provided by the Danube Declaration 2016, a ministerial declaration adopted at the ICPDR Ministerial Meeting on 9 February 2016.

The ICPDR organises Ministerial Meetings only once every six years, making them exceptional opportunities to add political limelight to specific aspects of the commission's work. The most recent meeting of this kind was held in Vienna on 9 February 2016. The occasion marked the adoption of the two plans for river basin and flood risk management; but it also added political weight to the plans, which the 15 ministers and high-level representatives endorsed. This is important because the EU directives underlying the plans – the Water Framework Directive and Floods Directive – are legally binding only in EU Member States. However, ICPDR countries that are not (yet) members of the EU commit to the directives politically. In addition, the ministers extended the objectives of the management plans further – and formalised this in a Danube Declaration, which was adopted at the meeting.

On the institutional side, the Danube Declaration highlights the significance of the ICPDR as the main coordinating mechanism for transboundary water management in the Danube River Basin; and it reaffirms the significance of the Danube River Protection Convention underlying this. The ministers also committed to implement the Joint Programme of Measures and the equivalent national programmes as integral parts of the management plans.

Past progress and future work. With regard to pollution reduction, the ministers highlighted progress in the reduction of organic pollution and the remarkable decrease of point sources of nitrate and phosphate pollution. They also called for further action to decrease pollution from diffuse sources. Hazardous substance pollution is a challenge and the ministers highlighted that more information would be needed to close existing knowledge gaps in this field.

Other aspects of the declaration also relate to areas in the management plans: looking at hydromorphological alterations, the ministers welcomed recent progress and the framework that the Danube River Basin Management Plan provides for further work. Pressures on groundwater were emphasised, such as nitrate pollution or over-abstraction, and the ministers called for higher investments in flood protection measures as well as solidarity in managing floods so that floods are not just passed on to downstream regions.

Coordinating with other efforts across the basin. Importantly, the ministers promoted integration, for example in the fields of conservation and restoration; EU biodiversity and climate policies; hydropower development; inland navigation; agriculture; and adaptation to climate change, foreseeing the update of the ICPDR's climate change adaptation strategy in 2018.

In the declaration, the ministers expressed their appreciation for communication efforts and the promotion of sturgeons as flagship species of the ICPDR. This highlights the link to the EU Strategy for the Danube Region, as the Danube Sturgeon Task Force draws considerable support from ICPDR structures. In line with this, the ministers also expressed support for sturgeon fishing bans and work towards improving fish migration at the Iron Gates Dams.

The next ICPDR Ministerial Meeting will be held in 2022. Meanwhile, you can read the original text of the Danube Declaration online at http://icpdr.org/main/mm16

Ivan Zavadsky is Executive Secretary of the ICPDR.

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Making the river a part of the occasion, the Third ICPDR Ministerial Meeting convened in a penthouse in Vienna's Donau City, overlooking the Danube on a crisp winter day.

Danube Ministerial Meeting: highest political endorsement for the ICPDR

The ICPDR convened its third Ministerial Meeting, bringing together ministers and representatives from all Danube countries, as well as NGOs and observer organisations, to define water management priorities in the Danube Basin for the future.

"A cleaner, healthier and safer Danube for everyone to enjoy." Participants in the third ICPDR Ministerial Meeting, convened at Vienna on 9 February 2016, heard this line on several occasions. It illustrates three key elements of the ICPDR's management plans with concrete examples: "cleaner" for the chemical water quality or the purity of water; "healthier" for ecological water quality or the water bodies as home to animals and plants; and "safer" for the people to live with the water without having to fear floods.

It is a simple message that sums up why the technical management plans are so important for making the lives of over 80 million people in the Danube Basin more enjoyable. Some 15 ministers and high-level representatives expressed their commitment to this message, and they were backed by representatives from observer organisations and distinguished keynote speakers who showed how important cooperation is in the sphere of water management. In linking the ICPDR with the EU Strategy for the Danube Region, the European Investment Bank and the OECD, President Peter J. Kalas chaired a meeting in the spirit of 'think global, act regional'.

The photos on the next few pages represent just a 'best of' selection from the Ministerial Meeting. If you would like to see more, you can find over 200 photographs at: http://icpdr.org/main/mm16

Ministers and high-level representatives responsible for water management from the Danube River Basin countries Austria, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Montenegro, Moldova, Romania, Serbia, Slovakia, Slovenia, Ukraine and the European Commission endorsed the Danube River Basin Management Plan Update 2015 and the First Flood Risk Management Plan for the Danube River Basin, and adopted the Danube Declaration.

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"Water is an indispensable basis for life that faces many pressures, from climate change to overexploitation, from growing scarcity to pollution," said ICPDR President Peter J. Kalas. "This is why the protection of the Danube River as the important source of water for the whole Danube region and its development is so important."

ICPDR Presidency 2016: smart sustainability for the Danube

In the year of its third Ministerial Meeting, the ICPDR is presided over by the Czech Republic, taking the lead to focus efforts on enhancing cooperation in the region.

With its iconic capital of Prague situated on the Vltava River, the Czech Republic is often overlooked as a 'Danubian' country. Unfairly so, as the Morava River draws from a substantial share of the country and, the Czech Republic is a founding member of the ICPDR. In this interview, ICPDR President Peter J. Kalas shares how his approach to the presidency will shape this year.

Dabube Watch: In a nutshell – what are your priorities for the Czech Presidency?

Peter J. Kalas: The Czech Republic takes over in a very important time with sustainable development goals adopted and river basin management plans prepared. As I presented at the Ordinary Meeting in Vienna in December 2015, Czech priorities build on the great work of past presidencies that pushed the work forward while addressing actual challenges. Specifically, our priorities are to:

• Provide active support for the implementation of both the Danube River Basin Management Plan Update 2015 and the First Flood Risk Management Plan for the Danube River Basin District

• Tackle the issue of floods and droughts as a response to global climate change, with links to sustainable development objectives

• Support existing cooperation in the region, including mediation of know-how, experience and application of innovative technologies while enhancing further cooperation towards smart sustainability of the region.

The Czech Republic is not a riparian country, so the Danube is not the dominant river in the Czech cultural narrative. Do you think the ICPDR Presidency could change this? How could you make the Danube and its Czech tributaries more visible in the Czech Republic?

"This high-level political acceptance [of the International Danube River Basin Management Plan Update 2015 and the First Flood Risk Management Plan for the Danube River Basin District for the period 2016–2021] created a strong mandate for the gradual implementation of planned measures."

Peter J. Kalas: As one of the 15 signatories of the Danube Convention, the Czech Republic is connected with the Danube through Morava River Basin as well as a number of national experts involved in working groups within the ICPDR. The Czech Presidency creates an opportunity to expand already well established expert awareness on the protection of the Danube. For this purpose, interdepartmental cooperation was initiated under the leadership of the Ministry of Environment of the Czech Republic with the Ministry of Regional Development of the Czech Republic, Ministry of Foreign Affairs of the Czech Republic, Ministry of Agriculture of the Czech Republic and the Office of the Government of the Czech Republic. The possibilities for individual sectors to support the Czech Presidency are being discussed within this group. This is how information on the Danube and the ICPDR will expand further outside the water sector in the Czech Republic.

Additionally, the gradual realisation of both management plans will create opportunities for Czech consulting and industrial companies to take part in the projects and to be involved in the implementation of measures.

As ICPDR President, you chaired the third ICPDR Ministerial Meeting. What do you think should be done to keep the political interest in water management in the Danube Basin high?

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"Czech priorities build on the great work of past presidencies that pushed the work forward while addressing actual challenges," says Peter J. Kalas, *former Czech Minister of the Environment and ICPDR President for 2016.*

PETER J. KALAS, FORMER CZECH MINISTER OF THE ENVIRONMENT AND ICPDR PRESIDENT FOR 2016

Peter J. Kalas is an engineer by training. A Czech and Swiss dual citizen, he looks back at a 30 years in international service for both countries and international organisations. Most importantly, Mr. Kalas pursued a distinguished career with the World Bank. He was Czech Minister of the Environment and serves as senior adviser to the current minister. He is an Alternate in the Board of the Green Climate Fund (UNFCCC).

Peter J. Kalas: The significance of the third Ministerial Conference is in the adoption of the Danube Declaration, which among others includes the adoption of the Danube River Basin Management Plan Update 2015 and the First Flood Risk Management Plan for the Danube River Basin District for the period 2016–2021 by current ministers and high level representatives of 14 member countries and the EU. This high-level political acceptance has created a strong mandate for the gradual implementation of planned measures.

The goal of the Czech Presidency is to maintain this high political interest. Therefore, on one hand I am preparing a personal visit to some countries of the ICPDR to discuss possible coordination of international and national funding programs. At the same time it will be important to maintain the active work of the Secretariat and the working and expert groups of the ICPDR, which is a prerequisite for the successful implementation of both mentioned international plans.

"The priority of the Czech Presidency in the area of floods and droughts is directly focused on cooperation to mitigate climate impacts in the Danube region."

The ICPDR coordinates basin-wide work in a transboundary context. How do you think this relates to global actions, from climate change adaptation to the sustainable development goals?

Peter J. Kalas: Implementation of planned measures for the protection of waters in the Danube River Basin is one example of local and regional adaptation to the impacts of global climate change. The priority of the Czech Presidency in the area of floods and droughts is directly focused on cooperation to mitigate climate impacts in the Danube region. Also, a number of internationally agreed upon sustainable development goals are relevant for the Danube Basin in the regional context and cooperation within the framework of the ICPDR should further facilitate the fulfilment of these objectives.

Wastewater treatment in the Danube Basin: a successful but still unfinished story

Untreated wastewater discharges from households and industry continue to threaten ecosystems in the basin.

Construction of urban wastewater treatment plants and upgrades to wastewater treatment technologies have contributed to a significant decrease in surface water pollution.

More than 10 million m³ of wastewater is generated by the citizens and industrial activities connected to sewers in the Danube Basin each day. If not properly treated, wastewater discharges can pose serious threats to the aquatic environment. Untreated wastewater contains organic material, nutrients and hazardous substances in high concentrations whose discharges can negatively affect water quality of the recipient water bodies.

The primary impact of organic pollution on the aquatic environment is dissolved oxygen depletion due to the biochemical decomposition of organic matter. It can also be associated with health hazards due to possible microbiological contamination of waters. Impacts on water status caused by nutrient pollution can be recognised through substantial changes in water ecosystems. In the case of nutrient enrichment, water bodies can enter a eutrophic state where the growth of algae or macrophytes is substantially accelerated. Depending on their concentration and the actual environmental conditions, hazardous substances can cause acute (immediate) or chronic (latent) toxicity. Some of the hazardous substances are persistent and slowly degradable, and can accumulate in the ecosystem.

Unbalanced development of wastewater infrastructure. Households and sewer-connected industry produce a total wastewater load of 88 million population equivalents (PE) at agglomerations above 2000 PE in the Danube River Basin (DRB). Most (72%) of this impressive load is now conveyed to urban wastewater treatment plants or treated individually. Ten percent of the total load is collected but then discharged directly into surface waters without appropriate treatment, whilst the rest is not collected, or treated but directly infiltrated into soil or released to water. The collection and treatment of wastewater is highly enhanced in the upstream countries and at good conditions in some countries in the middle-basin, however in the downstream states significant proportions of the generated loads are either not collected or are collected but not treated.

According to the assessments of the Danube River Basin Management Plan (DRBM Plan) – Update 2015 the basin-wide surface water emissions via wastewater discharges for the reference year 2011/12 total up to 255,000 tons Biochemical Oxygen Demand (BOD) per year. At the basin-wide scale, 88,000 tons per year Total Nitrogen (TN) and 12,000 tons per year Total Phosphorus (TP) are emitted into the surface waters from the wastewater collection and treatment facilities. A significant fraction (BOD: 68%, TN: 31%, TP: 43%) of these emissions stems from agglomerations without appropriate systems for wastewater treatment. The information that is available for hazardous substances emissions is rather scarce. Heavy metals, halogenated organic compounds, phenols, chlorides, cyanides and fluorides are the most relevant compounds with reported releases from treatment plants.

Progress achieved but huge investments still needed. Substantial amounts have been invested in the wastewater infrastructure in the last decade, e.g. more than €6 billion were allocated to infrastructure projects in the field of wastewater in the EU Member States of the DRB for the programme period 2007–2013. Construction of urban wastewater treatment plants and upgrades to wastewater treatment technologies have contributed to a significant decrease in surface water pollution. By 2015, wastewater collection and treatment infrastructure were improved at almost 900 agglomerations. Since the reference year (2005/06) of the first DRBM Plan, the BOD emissions via wastewater have been reduced by almost 50%. The recently reported figures on nutrient point source emissions are significantly lower than those of the first DRBM Plan: TN and TP discharges declined by 32% and 45%, respectively.

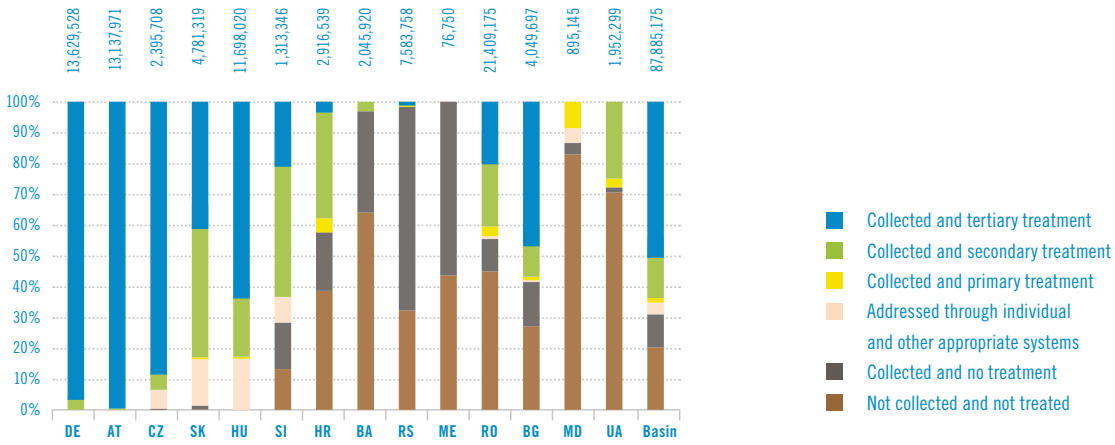
Most of wastewater loads (72%) from households and sewer-connected industry in the Danube River Basin is now conveyed to urban wastewater treatment plants or treated individually.

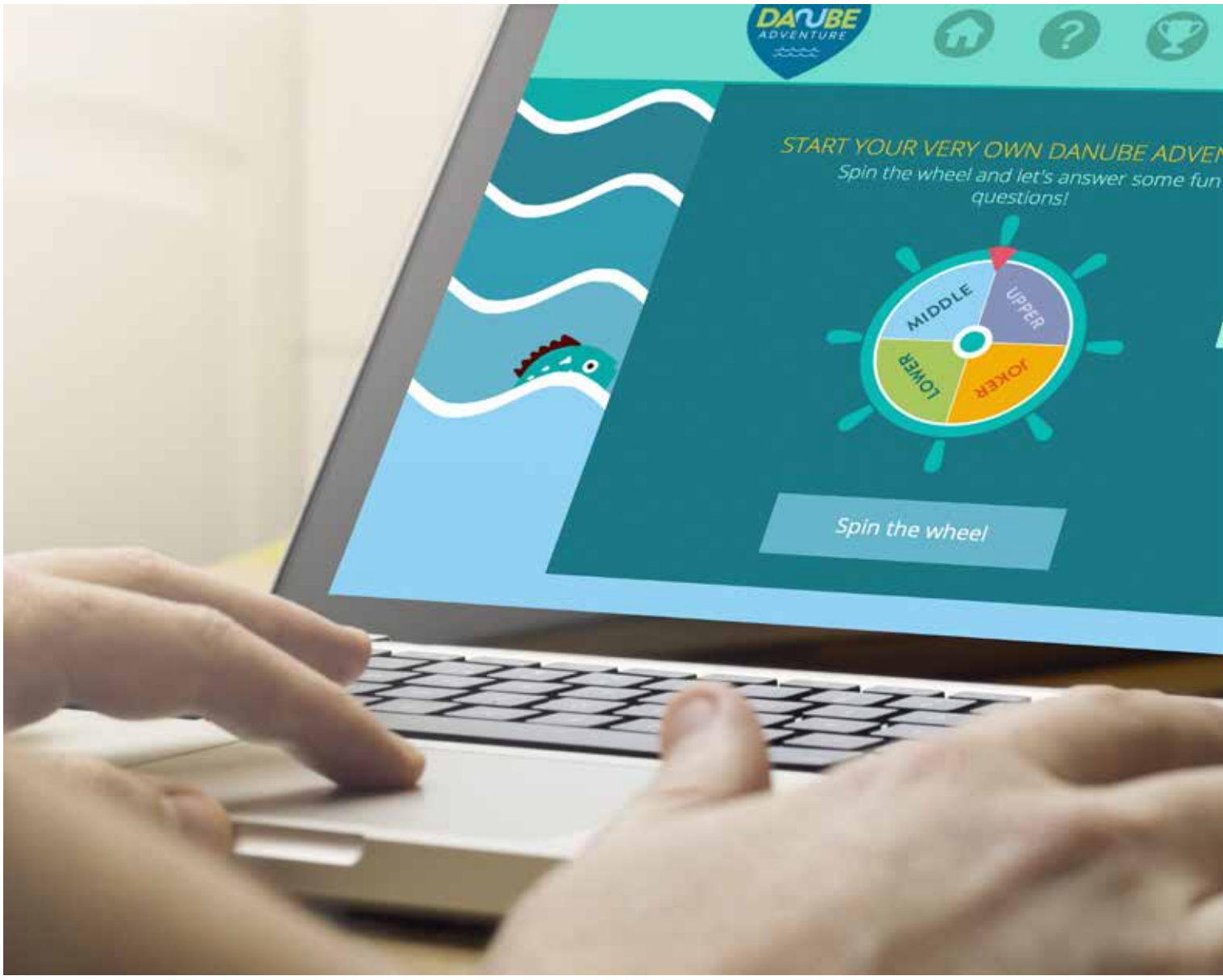
Despite the huge investments already made, additional measures should be taken in the future to further reduce point source pollution. Twenty-nine percent of the total PE of the basin needs basic infrastructural development aiming to achieve connection to public sewer systems and at least biological treatment. Wastewater treatment for 28 million PE at agglomerations above 10,000 PE should be further improved by introducing nutrient removal technology. In the EU Member States these measures are in line with the requirements of the EU Urban Wastewater Treatment Directive. Non EU Member States also intend to make efforts to achieve significant improvements by constructing a specific number of sewer systems and wastewater treatment plants by 2021.

Further efforts should be made in the next management cycle (2016–2021) to foster the development of investment projects in the wastewater sector. Supporting non EU Member States to find appropriate financial sources and to achieve better efficiency in wastewater management is still a challenge in the DRB and should be further facilitated. According to the baseline scenario, by 2021 about 14.5 million PE will be connected to treatment plants and almost 16 million PE will be connected to upgraded treatment technology. This would lead to a further decrease in pollution via urban wastewater discharges by 36% (BOD), 10% (TN) and 17% (TP). There is a strong need to close knowledge gaps on hazardous substances emissions in order to better understand what substances are released from wastewater treatment plants to water bodies and what additional measures might be needed to control them.

Adam Kovacs is the Technical Expert on Pollution Control at the ICPDR.

Share of the collection and treatment stages in the total population equivalents in the Danube countries
(reference year: 2011/2012, absolute numbers on the top refer to PE)





Although sturgeons no longer migrate from the Black Sea all the way to the Upper Danube, mine did. He made stops along the way – at Vidin, the Gemenc Floodplain and Immendingen – answering questions that earned us enough points to unlock a bonus game. The sturgeon, like my trip up the Danube, was digital.

The Danube Adventure online game launched this February, as an initiative of the Green Danube Partnership between the ICPDR and the Coca-Cola Company and Coca-Cola Hellenic. The Green Danube Partnership has gained recognition not only for raising public awareness for the Danube's treasures by hosting annual Danube Day events, but also for its multi-layered approach to involving stakeholders and its continued education of teens through the Danube Box programme for schools. Danube Adventure transfers this success to a contemporary medium.

"We are committed to sustaining our outreach, focusing on those that hold the future of Danube – young people", says Petya Djoneva, Group Community Affairs Director at Coca-Cola HBC Group. "Danube Adventure has been designed especially for them, and we believe it provides an exciting learning opportunity to share essential knowledge about the river while capturing attention through a game," says Sofia Kilifi, Public Affairs & Sustainability Manager at Coca-Cola Central & Southern Europe.

Diving into the fun. Although I'm older than the targeted age group of 12–14-year-olds, it's easy to see the appeal. It is a fast-paced game that will keep players coming back for more.

Players select an avatar – a sturgeon, a pelican or a ship's captain – and start their journey along the Danube. They make several stops in the lower, middle and upper Danube where they answer questions about the river systems and the plants and animals living in the basin, as well as the pressures water bodies face.

Correct questions earn points which can unlock additional avatars and bonus skill games. Those skill games vary from easier tasks such as the Bubble Catcher Challenge – where players have to remove

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The Danube Adventure online game is an initiative of the Green Danube Partnership between the ICPDR and the Coca-Cola Company and Coca-Cola Hellenic. The game transfers the Green Danube Partnership's success with programmes like the Danube Box to a new medium.

A virtual river where the lessons are real

Ten years after the success of the Danube Box, a new online adventure game lets children explore the Danube River, learning about its treasures and the pressures it faces through a clever combination of quiz and skill challenges, all from their smartphone or computer screen.

plastic bags, broken bottles or other objects that shouldn't be in the river – to a Memory Challenge that adults will find especially tricky.

Teaching with technology. Danube Adventure is a great example of a so-called 'smart games', which relies on popular game designs to both entertain and educate. Danube Adventure can be played on any platform on computers or phones, and is suitable for slower internet connections.

By collecting points, completing challenges and answering questions, payers can receive badges showing how much knowledge they've gained about the Danube. And registered users can create or join a group to collect points – perfect for a classroom setting. Furthermore, these badges and challenges encourage return visits, increasing the players' knowledge of the river.

A real win–win scenario. For players, the biggest takeaway from the game is the view of the river as a whole. Although the game organises rounds into river segments, the continuity of the river across national borders is emphasised, and the questions are cross-disciplinary and draw on topics from hydrology, ecology or even the history of cooperation in the region.

But at the end of the game, the Danube is the real winner. As children gain an understanding for the complexity of rivers and ecosystems while they're young, they will grow up to become adults committed to protecting these precious resources.

"We believe Danube Adventure will help more young people to gain awareness about environmental protection," says Kilifi. "We are also enthusiastic to see how this game will inspire youngsters to come up with practical ideas of preserving the precious gifts of the nature along the Danube," adds Djoneva.

For more information – and to play the game yourself! – visit www.danubeadventure.org.

Kirstie Shepherd is a freelance journalist living in Vienna and has called the Danube River Basin home since 2000.

Fighting drought in the Czech Republic

Motivated by one of the worst droughts in the country's history, the Czech Republic is taking an intersectoral – and an international – approach to developing long-term strategies to protect against water scarcity in the future.

The Czech Republic is situated at the roof of Europe with almost all its water originating in precipitation and flowing away to neighbouring countries. With 2.8 million inhabitants in the Morava Sub-basin alone, and agriculture covering 60% of this territory, preventing and protecting against natural phenomena such as floods and droughts is therefore critical to manage water and landscape for everyone.

Water challenges are facing communities and regions across the Danube River Basin, impacting millions of lives and creating significant economic and social problems.

Recent years have seen an increase in floods in the Czech Republic – since 1997, five out of nine flood events were considered extreme – and flood prevention and protection had been the major goal of water managers, supported by water authorities, politicians and the general public. At the same time, however, protection against the effects of possible drought events had not received nearly as much attention from the same groups and had been left to a community of professional water and agricultural experts.

But events in the last two years brought the issue to a head, in particular the 2015 summer drought which was one of the worst in the country's history. Precipitation had begun to decline as early as 2014, and by August 2015 levels were 150mm lower than normal. Record heat waves that summer worsened and by October 2015 the rainfall deficit was 180mm. The drought affected the entire country, with the water levels of most streams significantly below the 355-day discharge value. While there were no critical interruptions to household water supply, some sectors were significantly seriously affected, such as agriculture and the hydropower sector.

In February of 2016, the Czech Hydro-Meteorological Institute published 'Drought in the Czech Republic in 2015', a complex report focusing on the meteorological and hydrological aspects of the drought. Although published while the drought was still ongoing, the report will be updated this year to provide a comprehensive evaluation.

Working together for water scarcity. To face the impacts of drought, an intersectoral approach is crucial to ensure the effectiveness and sustainability of the measures taken. Therefore, in 2014, the Czech Ministry of the Environment and the Ministry of Agriculture established an interdepartmental commission called WATER-DROUGHT as an immediate response to the drought events that year.

The outcome of the WATER-DROUGHT commission was released in July last year, 'Preparation of Measures to Mitigate the Negative Effects of Drought and

Events in the last two years brought the issue of drought in the Czech Republic to a head, in particular the 2015 summer drought, which was one of the worst in the country's history.

Water Scarcity'. The aim of the document is to define the sectors involved and the most effective measures to be used to protect against droughts in the coming years. It includes monitoring, legislative, operational, economic, technical and environmental activities for which there are responsible institutions listed, as well as cooperating professional institutions and bodies to process the documents needed and provide broad viewpoints.

This document is the first step towards setting out a comprehensive, long-term strategy to protect the country from the harmful effects of potential future droughts. Such a strategy must be presented to the Czech government by June 2017.

Raising public awareness. The Ministry of the Environment, through the Czech Hydrometeorolgical Institute, undertakes monitoring related to drought and is tasked with sharing this information with the public. And to that aim, educating children and the general public is seen as particularly crucial. That is why – alongside effective rainwater management and measures to increase landscape water retention – the Ministry is supporting new educational programmes throughout the country.

However, water issues don't stop at national borders, so to address the impacts of droughts effectively, the government is aiming to raise the issue at international level. The Czech Republic is inviting other countries to share knowledge and lessons learnt on drought through the platforms currently chaired by the Czech Republic, such as the Visegrad 4+2 Group (Czech Republic, Hungary, Poland and Slovakia, plus Bulgaria and Romania), the Carpathian Convention, the ICPDR Presidency as well as international fora with a Czech presence.

Current climate change models predict an increase in the number of extreme weather events for the Danube region. While countries are gaining experience working together to prevent floods, those same strategic partnerships by all stakeholders will be needed to mitigate the impacts of drought successfully.

To face the impacts of drought, an intersectoral approach is crucial to ensure the effectiveness and sustainability of the measures taken.

For a copy of the report on the 2015 drought in the Czech Republic, please visit: http://portal.chmi.cz/files/portal/docs/meteo/ok/SUCHO/zpravy/en_drought2015.pdf

Veronika Matuszna works in the Czech Ministry of the Environment and is a national expert in two ICPDR Expert Groups.
Tereza Davidov works on drought issues at the Czech Ministry of the Environment.

Danube River Basin District Overview

LEGEND

- *Danube River Basin District (DRBD)*
- *Danube River*
- *Tributaries (with catchment area > 4,000 km²)*
- *Lake water bodies (with surface area > 100 km²)*
- *Transitional water bodies*
- *Coastal water bodies*
- *Canals*
- *Competent authority*
- *National borders*

Cities:

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

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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, December 2015

ICPDR MEETINGS	For final dates, please consult the ICPDR calendar, available at www.icpdr.org.
21/5/2016	WORLD-WIDE
	SECOND WORLD FISH MIGRATION DAY
1/6/2016	BELGRADE, SERBIA
	6TH MEETING OF THE PARTIES TO THE FRAMEWORK AGREEMENT ON THE SAVA RIVER BASIN
1/6/2016	SAVA BASIN
	SAVA DAY
7–8/6/2016	BELGRADE, SERBIA
	22ND GROUNDWATER TASK GROUP MEETING
9–11/6/2016	BELGRADE, SERBIA
	INTERNATIONAL WATER ASSOCIATION GROUNDWATER CONFERENCE
16–17/6/2016	MODRA, CZECH REPUBLIC
	14TH STANDING WORKING GROUP MEETING OF THE ICPDR
21–22/6/2016	BERLIN, GERMANY
	EUROPEAN CONFERENCE ON PLASTICS IN FRESHWATER ENVIRONMENTS
29/6/2016	DANUBE BASIN
	DANUBE DAY

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