

DANUBE WATCH

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FOCUS ON
FLOODS

6 **2014: RECORD FLOODING IN THE DANUBE RIVER BASIN**

Violent storms swept through South East Europe in May causing record floods that have devastated the region.

8 **DANUBE SOLIDARITY: UNITED ACROSS BORDERS TO FIGHT THE FLOODS**

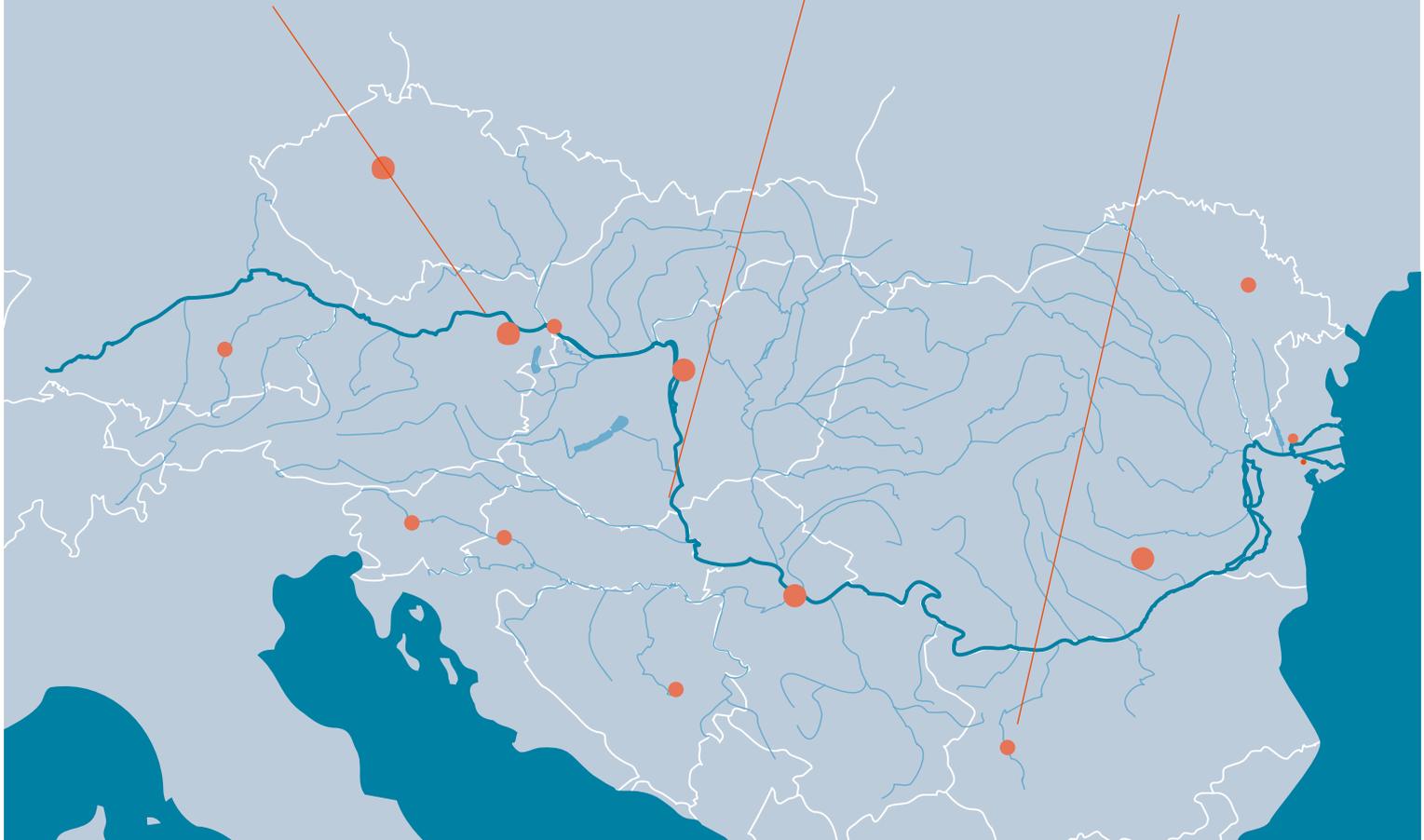
9 **PROGRESS ON THE DANUBE FLOOD RISK MANAGEMENT PLAN**

- 3 Dear readers
- 4 News & events
- 6 2014: record flooding in the Danube River Basin
- 8 Danube solidarity: united across borders to fight the floods
- 9 Towards sustainable flood management: progress on the first Danube Flood Risk Management Plan
- 12 Putting nature to work
- 14 How to save an island: natural habitat restoration in the Hungarian Lower Danube
- 16 Toolkit for managing international river corridors
- 18 Generation Blue: reaching out to future water leaders
- 20 A new partnership for wetland restoration
- 22 Water concerns not sufficiently met by the EU Common Agricultural Policy
- 23 Danube Watch Questionnaire

18
Vienna, Austria
Over the last ten years, the Generation Blue initiative seeking to attract children aged 13 to 19 with innovative projects related to water protection has become an integral part of classroom education as well as a popular pastime for kids outside of school.

14
Mohács, Hungary
As a result of a unique collaboration between the public and private sectors, supported by EU LIFE+ Nature funds, the extraordinarily rich wildlife of a Danube island in South Hungary has been saved.

20
Sofia, Bulgaria
At the 12th Standing Working Group meeting of the ICPDR, WWF and the Coca-Cola Company announced a seven-year partnership to conserve and restore vital wetland habitats and reconnect former floodplains in six Danube countries.





Dear readers,

Torrential rain, floods, landslides, death and thousands of people homeless; destruction of property, livestock and crops; the disruption of infrastructure and unsafe drinking water with ensuing health risks. This was the sad news from South East Europe this spring. Unfortunately it was not the first time we have seen this kind of tragic news.

The good news was the solidarity shown by the EU, Danube countries and individuals supporting the relief effort to help mitigate impacts.

But relief is not enough. According to climate change predictions we can expect more erratic weather, more frequent and more intense floods and droughts. Flood damage in the EU alone is expected to rise by a factor of 5 between now and 2050 to a gruelling total of €23 billion per year. And with costs of less than €2 billion per year flood damage could be reduced by €7 billion per year.

The EU Floods Directive provides a good basis for addressing risks in large transboundary basins such as the Danube Basin, and the 2010 ICPDR ministerial Danube Declaration is the political commitment to do so.

But good will is not enough. Solving the problems requires political action. Ways of reducing flood risks are well known and include appropriate land use measures, including the use of green infrastructure such as natural water retention, with multiple benefits for biodiversity.

Too often it is the fragmentation of governance, inappropriate land use in urban and rural areas magnified by harmful subsidies and the lack of funding which stands in the way of rational and cost-effective flood prevention measures.

For the Danube countries, there are three opportunities for leadership: the adoption by the ICPDR of a basin-wide flood risk management plan for 2015–2021; the publication later this year of the drafts of better-integrated national plans for river basin and flood risk management; and, finally, ensuring that the implementation of such plans is fully reflected in national EU funding priorities.

Peter Gammeltoft,
Former Head of Unit for Water, DG Environment,
European Commission



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The ICPDR accepts no responsibility or liability whatsoever with regard to information or opinions of the authors of the articles in this issue.



NEW ICPDR HEADS OF DELEGATIONS

The ICPDR welcomes a new generation of Heads of Delegations from four countries: Heide Jekel of Germany follows Fritz Holzwarth. Martin Bacik of Slovakia follows Norbert Halmo. Emilia Kraeva of Bulgaria follows Ivelina Vassileva. Valentina Tapis of Moldova follows Tatiana Belous. Danube Watch thanks the outgoing Heads of Delegations for their support and looks forward to the work of their successors.

Further information: www.icpdr.org/main/icpdr/heads-all-delegations-hods



NEW ICPDR OBSERVER: DANUBE CIVIL SOCIETY FORUM

The Danube Civil Society Forum (DCSF) was granted the status of observer organisation to the ICPDR. Founded in 2011, this umbrella organisation connects grass root civil society organisations with macro-regional efforts, in particular the EU Strategy for the Danube Region. Its activities include a range of environmental aspects. DCSF Member organisations have already cooperated with the ICPDR in the past, for example by organising Danube Day events. Danube Watch welcomes the DCSF to the ICPDR family.

Further information: www.danubestrategy.eu



ICPDR VIDEO AVAILABLE WITH SUB-TITLES

Last year, the ICPDR produced a video showcasing the diversity of the Danube River Basin as well as the Commission's work. To make this six minute video more accessible to non-English speaking audiences, some countries have cooperated with the ICPDR to produce sub-titled versions of the clip. These videos are now available on YouTube as well as on the ICPDR website. Sub-titles in German, Romanian and Ukrainian have already been completed, and sub-titles in further languages are likely to follow soon.

Watch the sub-titled versions at: www.icpdr.org/main/2014-video-subtitles



UNESCO CHAIR OF INTEGRATED RIVER BASIN MANAGEMENT

The inauguration ceremony for the first UNESCO Chair for Integrated River Research and Management was held at the University of Natural Resources and Life Sciences in Vienna on 2 June 2014. In his first lecture, chair Helmut Habersack emphasised that large rivers with catchments greater than 600,000 km² are often subject to very strong economic uses. This calls for management approaches that balance environmental, economic and socio-cultural interests. The new UNESCO Chair will enhance understanding of river dynamics from all three of these angles and thereby help improve management approaches.

Further information at: unesco-chair.boku.ac.at



Lake Baikal Box

A Toolkit for Primary and Middle Grade Students

LAKE BAIKAL BOX WINS EDUCATIONAL AWARD

The Lake Baikal Box – modelled on the Danube Box – has won the State Prize for Education by the Republic of Buryatia. The primary and middle school toolkit was created jointly by Buryat State University, the NGO Baikal Information Centre – GRAN, the United Nations Development Programme (UNDP) and The Coca-Cola Company (TCCC). It was published in 2013 under the UNDP-TCCC ‘Every Drop Matters’ initiative with over 1000 copies distributed to schools. The ICPDR is happy to see the Green Danube Partnership and the Danube Box continue to inspire educational initiatives world-wide.

Download the English Lake Baikal Box here: www.undp.ru/index.php?iso=RU&lid=1&cmd=publications1&id=151



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FIRST ICPDR GOODWILL AMBASSADORS: WOLFGANG STALZER AND FRITZ HOLZWARTH

Wolfgang Stalzer of Austria and Fritz Holzwarth of Germany are the first dignitaries in a new ICPDR honorary function: as ICPDR Goodwill Ambassadors they will resume a representative role for the Commission in international matters. Goodwill Ambassadors must have retired from civil service, served their country as Head of Delegation to the ICPDR for at least six years and acted as ICPDR President. In addition, the commission should establish that candidates “contributed substantially to the evolution of the commission”. The decision was made at the Ordinary Meeting last year and entered into force earlier this year. Danube Watch congratulates Wolfgang Stalzer and Fritz Holzwarth.



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HIGHLIGHTS FROM 20TH ICPDR ANNIVERSARY

The 20th anniversary of the Danube River Protection Convention was the main theme at the 12th Standing Working Group Meeting, which took the ICPDR back to where the convention was signed: the Bulgarian capital of Sofia. The anniversary also featured prominently at Danube Day celebrations – expect a more detailed review of Danube Day activities in the autumn issue of Danube Watch. A special session called ‘20 years of ICPDR’ at the 3rd EUSDR Annual Conference in June in Vienna celebrated past achievements and showcased current actions.



2014: record flooding in the Danube River Basin

Violent storms – with the heaviest precipitation in recorded history – swept through South East Europe in May causing record floods that have devastated the region.

In May, torrential rains caused catastrophic floods that raged through parts of Bosnia and Herzegovina, Croatia and Serbia – the worst floods in living memory. Thousands of people were evacuated and at least 80 people were killed after a week of flooding as rivers burst their banks and swept away roads, bridges and homes.

On May 13, a low-pressure area developed as warm, moist air from the Mediterranean Sea clashed with colder air from the north. Rather than move across the region with the jet stream, the low-pressure system remained over the region, resulting in extremely heavy rain for a couple of days – with some areas receiving a third of their annual total rainfall in just a few days.

The main flooding occurred in the Sava

River Basin, which forms a border between Bosnia and Herzegovina and Croatia, then flows into Serbia before joining the Danube at Belgrade. After several days of rainfall, water levels in some right bank tributaries of the Sava River rose suddenly and uncontrollably, flooding towns in their valleys, destroying bridges and infrastructure, and causing landslides. Floods had a particularly devastating impact on the towns and villages along the Bosna River, and the Sava River rose to unrecorded levels breaching levees, and flooding a number of towns.

Serbia and Bosnia and Herzegovina were most seriously affected, with flooding in several major cities and landslides in the mountain regions. Flooding was also seen in eastern Croatia as well as Romania and

Bulgaria, where there were numerous victims, and other Danube countries were affected by the storm – Austria, Hungary and Slovakia.

A trend of extreme weather. The region had seen unusually strong rains earlier this spring, so soils were saturated and unable to soak up the excess water. What's more, extreme weather has been frequent in the region. The 2011–2012 winter was very cold and harsh, while the following summer was extremely hot and dry with record droughts.

“This flood episode was the warning that even worse scenarios may happen in the future,” says Marina Babić Mladenović, Managing Director of the Department of River Engineering at the Jaroslav Černi



© Agency for the Water District of the River Sava, Bosnia and Herzegovina

2014 FLOODS IN SOUTH EAST EUROPE

Bosnia and Herzegovina – swelling rivers.

Most of northern Bosnia was flooded, especially the Bosna River Valley. The Bosna River in central Bosnia completely flooded the cities of Doboj, Zavidovići, Šamac and Maglaj – where the town experienced the average rainfall for three months in under 72 hours. Landslides swept away the entire hamlet of Pariči in Hrasno Donje, a municipality of Kalesija, and also affected the areas of Zeljezno polje in Zepce, Tuzla and other smaller areas in the Sava River Basin. Extremely high water levels at Prud and Kapanice on the Sava River caused overflows and damage to river levees, flooding some protected areas in Posavski canton.

Croatia – ruptured embankments.

Although Croatia was not as badly affected as Serbia or Bosnia and Herzegovina, rivers in the area ruptured embankments, most critically in southern Slavonia. The Sava River breached the embankment near Rajevo Selo and Račinovci and evacuations were ordered. Water levels on the Una River hadn't been that high since 1955, and the river caused flooding in the towns of Hrvatska Kostajnica and Dvor in the Banovina region.

Serbia – devastating floods and landslides.

Only the exceptional efforts of citizens and the army prevented the collapse of the levees near Sabac, and saved the vast lowland from flooding. Many communities were flooded, but the city of Obrenovac was hit hardest by flooding from the Kolubara River. The city was inundated by water several metres deep in the city centre. Krupanj in western Serbia was devastated by torrents and landslides that destroyed dozens of houses and washed out roads there, cutting off the town for three days. The heavy rains in the Drina River Valley caused landslides that cut off villages and closed roads.

serious threat, as there are a large number of dead animals in the water and dangerous debris. In addition, floodwaters may have shifted landmines planted during the Balkan wars of the 1990s.

As a result of power outages caused by the floods, Serbia's electricity production has been cut by 40%, and power supplies have been disrupted in Bosnia and Herzegovina and to a lesser extent in Croatia as well. Transport in the region was interrupted or broken with thousands of roads destroyed. Damage from agricultural losses in the affected areas has yet to be determined, however thousands of livestock perished in the floods.

The official report of the destruction will not be available until officials have been able to make a full assessment; however estimates indicate that over 1.6 million people were affected by the flooding, with estimates of the damage running to more than €1 billion.

Raising public awareness of future flood risks. “One of the main problems is that we only talk about floods after a disaster,” says Almir Prljaca, Head of the Department for Water Management at the Sava River Watershed Agency, Bosnia and Herzegovina.

“There is little understanding still about floods being a natural and unpreventable phenomenon,” says Marijan Babić of Croatian Waters. “I think that it will still take some time before the public realises that there are things that are beyond anybody's control and beyond anyone's possible guilt,” says Babić.

The ICPDR's Action Programme for Sustainable Flood Protection in the Danube River Basin makes public participation in decision-making a cornerstone of successful protection efforts. For more about the ICPDR's activities focusing on preparation of the Flood Risk Management Plan for the Danube Basin District and the implementation of the EU Floods Directive, please see the article on page 9.

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

Thousands of people were evacuated from their homes in Serbia and Bosnia and Herzegovina in the face of the worst flooding in recent memory.

Institute in Serbia. According to the ICPDR's Climate Adaptation Strategy for the Danube River Basin, adopted in December 2012, torrential precipitation and widespread droughts will probably be more frequent in the future, the latter mainly in southern and eastern parts of the Danube River Basin.

Making a slow recovery. The situation in Bosnia and Herzegovina, Croatia and Serbia is slowly stabilising, although warmer weather brings the risk of infectious diseases. Contaminated drinking water is a

Danube solidarity: united across borders to fight the floods

The devastating floods in the Western Balkans this spring proved that the rivers of the Danube Basin are more than boundaries; they are bonds that link the countries together in shared compassion.



For many years, the ICPDR has been an advocate of Danube solidarity in pursuit of measures to manage flood risks. Traditionally, this solidarity has called for flood protection that retains water and considers the circumstances of downstream regions. The devastating floods in the Western Balkans this year, however, resulted in a demonstration of solidarity that went even further.

Resulting from the heaviest rain in a century, the worst floods in the Balkans for decades left dozens dead and forced tens of thousands of people to leave their homes. The enormous material damage has yet to be assessed.

Soon after disaster struck, the permanent missions of the affected countries approached the delegations of all ICPDR contracting parties with pleas for help –

monetary, material or knowledge. Technical cooperation facilities collaborated, as did the militaries of all affected countries.

United in aid efforts. Several teams from the German Agency for Technical Relief helped local people in Bosnia and Herzegovina and Serbia to fight the floods. Slovenian forces from police, army and civil protection units were active in the region from an early stage of this historical flood event in the Sava River Basin. The Hungarian disaster relief team HUNOR helped in the Serbian village of Klenak and 100,000 sand bags were sent from Hungary to the Bosnian city of Orasje.

Relief actions were organised by Austria, providing pumps, helicopters from the Austrian EUFOR contingent and financial support for relief actions. Two Czech teams operated water pumps in Serbia

Moving stories of support given domestically add to the international aid effort – with individuals pitching in to help their neighbours throughout the affected areas.

Soon after disaster struck, Danube countries responded with a wave of support and solidarity to help the victims of the devastating floods in the Western Balkans this year.

with a capacity of 700 litres per second and 1,500 litres per second. Two more Czech teams operated pumps in Bosnia and Herzegovina with a capacity of up to 5000 litres per second, and used long-distance transportation equipment to remove the pumped water from the affected area.

These are just some examples of a wave of support and solidarity given to help the flood victims. Moving stories of support given domestically add to the international aid effort – the Serbian Danube Day, for example, was drastically downscaled and the funds budgeted for it given to flood victims.

Help is still needed. Taking all of this into account, the damage and losses are still dramatic and aid continues to be urgently needed. If you can help, please note the aid efforts coordinated by the relevant Red Cross country organisations:

Bosnia and Herzegovina: www.rcsbh.org

Bulgaria: en.redcross.bg/news/view.html?nid=19935

Croatia: www.hck.hr/en/page/emergency-appeal-for-flood-affected-areas-in-croatia-415

Serbia: www.redcross.org.rs/arhiva__2441

Benedikt Mandl is the Technical Expert for Public Participation and Communication in the ICPDR Secretariat, and the Executive Editor of Danube Watch.

Towards sustainable flood management: progress on the first Danube Flood Risk Management Plan

With floods a serious threat in the region, the ICPDR is making progress on the first-ever basin-wide plan to manage flood risks for the entire Danube River Basin.



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The Floods Directive requires flood hazard and risk maps showing the potential adverse consequences associated with various flood scenarios – pictured here, embankments in the area of Posavina, Bosnia and Herzegovina damaged by the recent floods.

The Danube has been the site of many disastrous floods over the centuries. The most famous was the 1501 flood on the upper Danube, considered to be the largest summer flood of the last millennium, causing extensive devastation down to Vienna, and its impact felt downstream to the Danube Bend at Visegrád. An ice-jam-induced flood of 1838 devastated a number of settlements from Esztergom to Vukovar, including the towns Pest, Óbuda and the lower parts of Buda on the territory of today's Hungarian capital. In recent years, major floods have occurred in 2002, 2006, 2010, 2013 and 2014.

From its beginnings, the ICPDR has made flood prevention a priority, and was recognised as a threat in the Danube River Protection Convention when it was first signed in 1994. Ten years later, the ICPDR

adopted the Action Programme for Sustainable Flood Prevention at the ICPDR Ministerial Meeting on 13 December 2004. Under the Action Programme, the ICPDR published 17 sub-basin flood action plans in 2009. The sub-basin plans were based on 45 planning documents covering the entire basin and provided the first ever comprehensive overview of actions to reduce flood risk in the Danube Basin.

At the same time, similar efforts were under way at the European level, and the EU Floods Directive entered into force in 2007. The Directive requires Member States to carry out a preliminary flood risk assessment by 2011, draw up flood hazard and risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by 2015.

The Flood Risk Management Plan for the Danube River Basin District will highlight issues relevant from a basin-wide perspective, including avoiding new risks, reducing existing risks, strengthening resilience, raising awareness and applying a principle of solidarity.

Involving stakeholders is vital to the future of flood protection, and preparation for the Flood Risk Management Plan for the Danube River Basin District will include a public consultation process.



Green infrastructure measures will play an important role in sustainable flood risk management because they also act in favour of the environmental objectives of the EU Water Framework Directive.

In 2010, all of the Danube countries, even those that were not EU Member States, pledged to make all efforts to implement the Floods Directive throughout the entire Danube River Basin. At the ICPDR Ministerial Meeting in 2010, Danube Ministers adopted the Danube Declaration, which included, among other things, a commitment to develop a single international Flood Risk Management Plan by 2015. This plan will be based on the ICPDR Action Programme for Sustainable Flood Protection as well as the sub-basin plans, and will make full use of the existing synergies with the Danube River Basin Management Plan.

Gathering the tools for flood risk assessment.

Receiving this mandate, the flood specialists working in the ICPDR Flood Protection Expert Group have taken all efforts to fulfil the requirements of the Floods Directive. The ICPDR carried out a Preliminary Flood Risk Assessment (PFRA) for the Danube

River Basin District by March 2012. The PFRA report provided information on major past flood events and summarised the methodologies and criteria used at the national level to identify and assess floods that occurred in the past and their past adverse consequences. The report also reviewed the assessment at the national level of the potential adverse consequences of future floods for human health, the environment, cultural heritage and economic activity as well as the methodologies used at the national level to identify areas of potential significant flood risk, especially those of a transboundary nature. The map of these areas was updated in December 2013 with additional data.

The PFRA report produced by the ICPDR laid the foundation for the development of flood hazard and risk maps and for the preparation of a flood risk management plan. Most importantly, it provided the first ever overview of the areas of potential significant



© Agency for the Water District of the River Sava, Bosnia and Herzegovina

flood risk in the Danube River Basin District, therefore serving as a vital message to stakeholders and the public about the potential vulnerability to flood hazards.

The Floods Directive requires flood hazard and risk maps showing the potential adverse consequences associated with various flood scenarios, including information on potential sources of environmental pollution as a consequence of floods. These maps are necessary as an effective tool for information, as well as a valuable basis on which to set priorities and make further technical, financial and political decisions regarding flood risk management. The ICPDR is preparing the flood hazard map for the Danube River Basin District showing the extent of floods with medium and

low probability for catchments larger than 4000 km². A number of flood risk maps are also being prepared showing the impacts on population, economic activity, installations identified by the EU Integrated Pollution Prevention and Control Directive as well as protected areas under the EU Water Framework Directive.

Basin-wide flood risk management objectives. The ICPDR is also currently under way on the Flood Risk Management Plan for the Danube River Basin District, which is setting appropriate objectives for managing flood risks for the entire river basin. The plan, due in 2015, will complement national flood risk management plans, which provide more detailed information on measures as well as flood maps. The ICPDR has agreed on the following basin-wide objectives of the Flood Risk Management Plan: avoiding new risks; reducing existing risks; strengthening resilience; raising awareness; applying a principle of solidarity by not pushing problems downstream.

The Flood Risk Management Plan for the Danube River Basin District will focus on strategic level measures. While Danube flood experts are still discussing the final criteria to prioritise these strategic measures, it is clear that transboundary effects and a principle of solidarity should play a central role in selecting the most significant measures at the Danube Basin level. This would bring into focus measures such as natural water retention, flood retention, flood warning and monitoring systems, the reduction of risk from contaminated sites in floodplain areas and the exchange of information.

Planning for a green Danube. All flood retention structures contribute to flood attenuation, so will be given top priority in the plan. Similarly attention will be given to the green infrastructure measures which play an important role in sustainable flood risk management because they also act in favour of the environmental objectives of the EU Water Framework Directive. Finding ways to achieve common synergies and shared benefits is one of the stipulations of the Floods Directive, which requires countries to coordinate the implementation of that Directive with the EU Water Framework Directive. Therefore, making space

for rivers, especially in areas where the human and economic stakes are relatively low, is a more sustainable way of managing floods and mitigating the potential future impacts of climate change. In addition, the conservation and restoration of the natural functions of wetlands and floodplains, with their ability to retain floodwaters and reduce the flood wave, can be seen as a win-win solution. For more about natural water retention measures, see article on page 12.



The ICPDR report on Preliminary Flood Risk Assessment for the Danube River Basin District provided the first ever overview of the areas of potential significant flood risk in the Danube River Basin District, therefore serving as a vital message to stakeholders and the public about the potential vulnerability to flood hazards. © Agency for the Water District of the River Sava, Bosnia and Herzegovina

Involving stakeholders in the future of flood protection. All efforts are being made to produce a draft of the Flood Risk Management Plan for the Danube River Basin District by the end of 2014 in order to launch the public consultation process. This will be followed by the development of an updated version of the draft plan based on additional data collected early in 2015. The updated draft will be discussed at a stakeholder conference in June 2015 in the final phase of a seven-month public consultation period, which will end in July 2015. This approach will ensure that the first Flood Risk Management Plan for the Danube River Basin District will include all necessary information and ensure the active involvement of all interested stakeholders.

Igor Liska is the Technical Expert for Water Quality and Water Management at the ICPDR Secretariat

Putting nature to work

Nature provides so many benefits to human society. A new pilot project funded by the European Commission's Directorate-General for Environment aims to harness the adaptive forces of nature to cope with the impacts of extreme events (floods, droughts, desertification) and to contribute to sustainable water resources management.

Human society benefits in a multitude of ways from ecosystems. Wetlands or forest root systems purify water we drink. Trees work to trap dust, dirt and harmful gases from the air we breathe. The wind disperses seeds and bees pollinate crops and natural vegetation. Natural ecosystems perform functions that we often take for granted but upon which our society depends.

Natural water retention measures are an important component of green infrastructure. Their distinctive characteristic is that they are designed to restore and maintain water-related ecosystems by natural means. Such measures include, but are not limited to: slowing down water flows, increasing infiltration rates, controlling storm flows, storing water and reducing pollution loads. Generally speaking, the aim of such measures is to enhance natural characteristics and capabilities of wetlands, rivers and floodplains to hold or retain as much water as possible during periods of abundant or even excessive precipitation, so that water is available for use during dry periods. Natural water retention measures also contribute to limiting the negative effects of droughts by helping the soil and landscape to retain water and recharge groundwater more effectively.

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The recently restored wetlands on Belene Island are among the most important places in the Lower Danube for the breeding and feeding of different water species of birds and fish.



However, it is also evident that natural water retention measures have great flood management potential, as enhanced water storage capacity restores and re-connects floodplains, which reduces and slows the pace of water flows, thereby reducing flood risk. Natural water retention measures are linked directly to the implementation of the Flood Directive, which places a great deal of emphasis on the role of floodplains and sustainable land use practices.

Assessing nature's abilities. 'Integration of Natural Water Retention Measures in River Basin Management' is a pilot project

funded by the European Commission's Directorate-General for Environment. To assist natural flood management and contribute to sustainable water resources management, the project team is amassing state-of-the-art knowledge, available data and information and best practices, while at the same time assessing the effectiveness, costs and benefits of the measures in place. These include measures related to forestry, sustainable agriculture and sustainable drainage systems in urban areas. There are also measures that focus on increasing storage capacity in and near catchment areas.

This wide review will result in the publication of a catalogue of measures and case studies, as well as a practical guide on the design and implementation of natural water retention measures. The guide will provide reliable and comprehensive information for river basin managers and field practitioners, which will increase the use

of these measures in the second and subsequent river basin planning cycles and flood risk management plans.

"The practical guide has to be directly connected to the knowledge base," says Pierre Strosser, head of ACTeon, one of the project partners. "Following the guide will give one access to information and case studies and will help you to navigate the knowledge base, depending on the steps being taken."

Building a community of practice. The project facilitates the sharing of experiences and lessons learnt through four



The wetlands at Balta Geraiului had been drained to improve conditions for agriculture. Today, the restored site boasts growing biodiversity.

regional networks, which brings together all interested parties – the Baltic Sea regional Network, the Western Network, the Mediterranean Network and the Danube Network. Workshops are held to support the exchange of knowledge, during which theoretical and practical views on natural water retention measures and related issues are shared and discussed. The Danube Network team is concentrating on gathering experiences and good practice examples of natural water retention measures in the Danube River Basin. It also promotes measures that use or mimic natural processes with direct impacts on hydrology, water retention and ecosystems protection.

“Measures implemented in the Danube region are much like those in western regions,” said Frank van Lamoen, Senior Advisor on Water Management and Climate Change from North Brabant Province in the Netherlands, speaking at the First Danube Region Workshop which took place in Szentendre, Hungary, in

January 2014. “But there are differences in geographical settings, regional circumstances and governance systems. While it’s good to have technical exchanges concerning implementation, if you want to shift attitudes and move towards more natural solutions I think we also need support from financing instruments and governance systems in which we can work together with other parties.”

The results from case studies in the Danube Basin show that the region has applied a broad array of natural water retention measures in areas related to nature protection and flood risk mitigation. One of the most common problems is how to restore areas that were either drained or dyked to create arable land. In most cases, measures have been implemented to restore ecological functions, achieve a healthy water balance and decrease flood risk. Assessment of the monetary values – or the direct benefits – of these measures is generally based on estimated damages and costs that may have been

The results from case studies in the Danube Basin show that the region has applied a broad array of natural water retention measures in natural areas related to nature protection and flood risk mitigation.

incurred had implementation not taken place. Indirect benefits are linked to job creation, sustainable tourism, fishery, biomass production etc. European Union funds provide the primary financial means to implement natural water retention measures in the region.

For more information about the project, please visit: www.nwrm.eu.

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How to save an island: natural habitat restoration in the Hungarian Lower Danube

As a result of a unique collaboration between the public and private sectors, supported by EU LIFE+ Nature funds, the extraordinarily rich wildlife of a Danube island in South Hungary has been saved.

Just a decade ago, Liberty Island, located north of the town of Mohács, Hungary, was on the brink of disappearing. The island's side arm had been blocked off by a rock-fill dam in 1982 and the island was badly affected by forest degradation due to commercial forestry and invasive tree species. Today, thanks to joint efforts over the last five years, the natural river flow has been restored and the native, alluvial soft-wood forest has been replanted, thus revitalising the natural habitats of the island. In addition, the restoration process has improved water quality for about 70,000 people living in the region.

Islands under risk. A natural river continuously forms new islands and side-arms, providing slower, warmer water and rambling

hideouts for an extraordinarily rich range of wildlife. However, the Danube has been significantly altered over the past 150 years. A large number of side-arms have been blocked off to keep the water flowing in the main branch of the Danube for navigation. The regulated Danube no longer forms new islands and branches, leaving these unique habitats facing extinction.

A large-scale project to save Liberty Island began in 2008. It was initiated by WWF Hungary, supported by an unprecedented collaboration between the public and private sectors. WWF Hungary received more than €1 million, 60% of the total budget, from the European Community's LIFE+ Nature programme, thanks to capital provided by Coca-Cola HBC Hungary and the Municipality of Mohács.

The shape and depth of the dredged arm was designed scientifically: the side-arm had to be made as self-sustaining as possible to prevent fast sedimentation. Due to natural river-dynamics, sedimentation of side-arms is unavoidable, but it is possible to slow the process down.

Actions to save the island. The first step of the project was to purchase the island and transfer ownership to the Hungarian State, which put its management into the hands of the Danube-Drava National Park Directorate. The area was turned into a nature reserve dedicated exclusively to conservation, and commercial forestry in the area was stopped for good. Secondly, the native, alluvial forest was replanted to provide an undisturbed habitat for wildlife such as rare birds of prey.

Drinking-water pipes had to be relocated before the rock-fill dam could be removed. After that, two dredging ships worked for 7 months, 12 hours a day, to remove the 160,000 m³ sediment, mainly sand, from the side-arm. The dredged material was transported to the main river branch and

released there to reduce the sediment deficit of the Danube. The shape and depth of the dredged arm were carefully designed to be as self-sustaining as possible to prevent fast sedimentation. Natural river-dynamics mean sedimentation of the side-arms is unavoidable, but it is possible to slow the process down.

Benefits for nature and people. The five-year project finished in 2013 and today the side-arm flows freely again. It is 40–60 metres wide and almost 2 metres deep even in the low-water season. The relocated drinking-water pipes transport water to the nearby water purification plant, which provides drinking water for the city of Pécs and its surroundings. By making use of the healthy active biological filter of the revitalised branch, the water wells along the Danube provide cleaner water, thus requiring less purification in the waterworks. Restored to its natural shape, Liberty Island once again provides a habitat for protected species such as the European beaver and Black kite. Fish have

also returned, and thus the island contributes to the ecological diversity of the Danube Basin.

The young forest will need to be taken care of for a few more years. In the side-arm, WWF Hungary will monitor sedimentation and river dynamics and will also monitor the quality of raw water extracted from the drinking water wells, ensuring that the improvement continues. Better filtration is expected to have a positive influence on the water wells within the next 3–5 years.

A unique cooperation for nature conservation goals. The success of the Liberty Island project has proved that governmental bodies, municipalities, NGOs and private corporations can join forces to provide funds and expertise for an objective beneficial to the community and nature.



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PROJECT PARTNERS

European Union

The five year project received prioritised funding from LIFE+ Nature. In addition, the EU gave further assistance by providing an external consultant.

Coca-Cola Hungary

The Coca-Cola Hellenic Group and The Coca-Cola Company provided €300,000,, professional assistance and volunteer work for the project.

Danube-Drava National Park Directorate

The Directorate supervised the technical implementation of the project from a nature conservation perspective.

Lower-Danube Water Management Directorate

As the water management manager of this stretch of the Danube, this Directorate supervised the whole project.

Transdanubian Regional Waterworks Corporation

The corporation supervised the design and implementation of the water pipe relocation.

Municipality of Mohács City

In addition to a financial contribution from the City, the Office of the Mayor was one of the main promoters of the project.

WWF Hungary

The project was coordinated by WWF Hungary, the Coordinating Beneficiary in the LIFE+ Nature project.

“Responsible operation and use of water means more than re-engineering the production process,” says Éda Pogány, Communications and Public Relations Director of Coca-Cola HBC Hungary. “That is why we decided to support WWF Hungary’s Liberty Island habitat restoration project, which has revived wildlife, restored the native softwoods of the island and provided better drinking water for the communities of the South Barany region.”

Today the side-arm flows freely again: it is 40–60 metres wide and almost 2 metres deep even in the low-water season. The Liberty Island project has proved that governmental bodies, municipalities, NGOs and private corporations can join forces to provide funds and expertise beneficial to the community and nature.

There are more than a hundred islands in the Hungarian stretch of the Danube still threatened by sedimentation as Liberty Island used to be. To prevent the elimination of the side-arms and to save the islands, it is urgent to start a large-scale restoration programme so that these wonderful and important alluvial habitats may be preserved.

Viktória Siposs is the project coordinator of the LIFE+ Nature project, WWF Hungary.



Toolkit for managing international river corridors

The SEE River project will soon present the lessons learned from its efforts to find practical ways to introduce integrative management in six river corridors in the Danube and Balkan regions.

Water use among different users creates conflicts on the – still very intact – Vjosa River. The competing uses include drinking water supply, agriculture, energy production, wastewater discharge, among others.

Testing an innovative river development tool is difficult enough. But testing that tool with 26 organisations from 12 countries who will work in parallel on six different rivers in South East Europe is ambitious to say the least, but will also have the potential to achieve impressive results. This was the reason the Sustainable Integrated Management of International River Corridors in South East Europe Countries project (SEE River) was ranked top in the SEE Transnational Cooperation Programme's call for proposals in 2012. The results of the testing will be ready for publication in late October 2014 at a final event integrated with the 6th European River Restoration Conference to be held in Vienna.

The project originated at the International Drava Symposium held in Maribor, Slovenia, in September 2008. At the end of that symposium, the Drava River Vision Declaration was signed by the Heads of Delegations of the four riparian states to the ICPDR (Austria, Slovenia, Hungary and Croatia) and a high Italian representative. Over 130 symposium participants, including 14 current SEE River project partners and observers, agreed on future priorities and a common vision for integrative management of the Drava River (see Danube Watch 3–4 2008).

Hand in hand for six rivers. Some key actors from the symposium are also initiators of the complementary, five-country

Trans-Boundary Biosphere Reserve Mura-Drava-Danube (TBR MDD), supported by UNESCO. But through the partner network, it was clear there was a need for similar initiatives on other international rivers in South East Europe, namely the Soča (Slovenia and Italy), the Bodrog (Ukraine, Slovakia and Hungary), the Prut (Ukraine, Romania and Moldova), the Neretva (Bosnia and Herzegovina and Croatia) and the Vjosa (Greece and Albania). The extended partnership, including non-Drava countries, agreed that the project should jointly develop a SEE River Toolkit as the best practice methodology for integrative management of international river corridors. The project began in October 2012 with a budget of €2.1 million.

Contemporary river management in line with EU directives needs to be integrative both for different sectors and geographical levels: SEE River, therefore, has combined economic development and nature conservation interests with top-down and bottom-up participation methods, consistently involving local, national and international actors.

The project partnership includes national and provincial expert institutions from the environment and water management sectors as well as several observing ministries and international organisations, including the ICPDR. The project is led by the Institute for Water of the Republic of Slovenia.

Combined top-down and bottom-up approach. The current management situation of river corridors in South East Europe is very mixed. What they have in common are many incompatible interests and pressures along the river corridors, notably with a trans-boundary scale. However, contemporary river management in line with EU directives needs to be integrative both for different sectors and geographical levels: SEE River, therefore, has combined economic development and nature conservation interests with top-down and bottom-up participation methods, consistently involving local, national and international actors.

It also introduces the river corridor as the core part of the catchment area where most pressures are concentrated and therefore integrated solutions are most needed. The overall goal is the harmonised and sustainable use of river corridors in their individual settings and development visions.

The project started with an analysis of the existing diversity of administrative and management procedures as the prescribed legal framework to be observed by the responsible national or local authorities when planning and managing certain human uses (e.g. water

abstraction for agriculture and industry, nature conservation, transport, tourism) or functions (e.g. retention of flood waters, recreation, landscape image) in riverine areas.

The analysis also questioned the actual level of stakeholder involvement, such as of other government bodies, local communes, NGOs, land owners or agriculture.

Developing stakeholder involvement. One key activity of the SEE River project was a river corridor analysis and development process. At least three local workshops were held in each country to jointly discuss the complex river uses along the Soča, Neretva, Bodrog, Prut, Vjosa and Drava rivers – the latter subdivided into five national pilot areas. In addition, international river workshops were held to incorporate the trans-boundary dimension of the corridors.

Discussions were held to stimulate local stakeholder networks and to create multi-sectoral stakeholder agreements on the future development vision and concrete management tasks for each river corridor. This includes various local follow-up activities and follow-up project proposals from SEE River partners. Stakeholders further agreed on a Joint Drava River Corridor Action Plan that will be presented to the bilateral border river commissions of Drava countries.

The download section of the project webpage (www.see-river.net) presents a directory of integrative river management models from all over Europe that are briefly presented in their key aspects and achievements. They are available to all interested stakeholders as useful examples of experience about innovative river development.

Leading diverse interests to win-win solutions. The early, continuous and active engagement of many stakeholders in a river corridor is both demanding and rewarding: It assesses the vested interests and leads to jointly supported solutions. Therefore, the lessons learned from the SEE River project and the results produced at the local and international level will be presented at national seminars in all ten project countries in September and October. This is necessary as there are more rivers in the Danube and Balkan regions where this toolkit can be applied to expand integrative river corridor management and engage more people working – effectively – hand in hand for rivers.

Alexander Zinke (Zinke Environment Consulting for CEE) is the project's external expert of the Austrian Ministry for Environment (BM-LFUW).

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National seminars in all ten project countries in September and October will inform about the active engagement of many stakeholders on SEE pilot rivers.



The early, continuous and active engagement of many stakeholders in a river corridor is both demanding and rewarding.

Generation Blue: reaching out to future water leaders

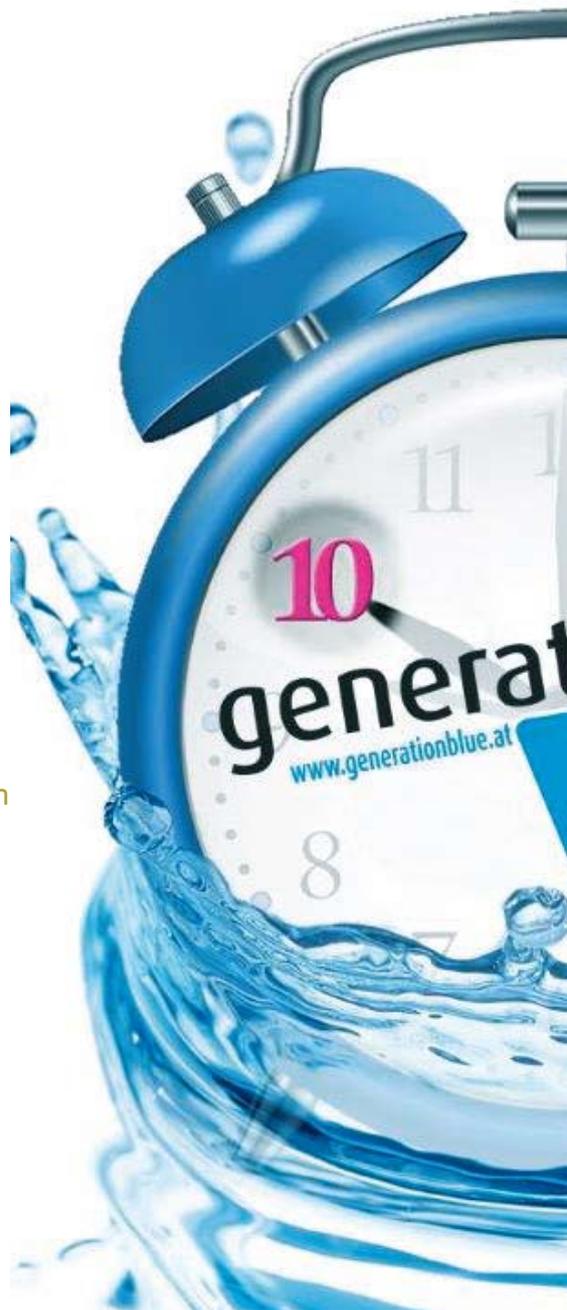
Over the last ten years, an initiative seeking to attract children aged 13 to 19 with innovative projects related to water protection has become an integral part of classroom education as well as a popular pastime for kids outside school.

When teachers and experts in Austria think of water education for children, the first thing that comes to mind is Generation Blue, the youth water platform from the Federal Ministry of Agriculture, Forestry, Environment and Water Management. The innovative platform, which targets young people to teach them how to protect water resources, celebrates its tenth anniversary this year.

Launched in 2004, Generation Blue brings together a variety of media channels, including a web platform, online games, a Facebook page and a YouTube channel to address young people between the ages of 13

and 19 years old. The web platform (www.generationblue.at) provides the possibility to share relevant information as well as pictures, videos and other content. Incorporating social media has been an important part of the programme, and easy access to communication has been a target from the beginning.

“We have always sought to cater for the needs of a digital age and the high mobility of our target group,” says Susanne Brandstetter, project manager of Generation Blue. “More than 20% of all visits to the website are already made via smartphones – and the number is growing steadily.”



From digital platforms to outdoor classrooms. In addition to online material, Generation Blue has brought the river into the classroom. The platform includes a dedicated Teacher Service section, providing downloads for teaching materials on water supply, water quality, water as food and the Blue Planet – all of which can be easily integrated with the regular school world.

Meanwhile, Generation Blue has been successful in getting teenagers away from their desks and out to riverbanks to learn about river habitats in the field. The Danube Challenge, launched in 2007 by Generation Blue along with Coca-Cola Hel-



Generation Blue celebrates its tenth anniversary, and ten years of inspiring tomorrow's water leaders to protect natural resources today. © Knallgrau

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Susanne Brandstetter, project manager of Generation Blue, credits the commitment from internal and external supporters for the web platform's success in teaching young people how to protect water resources.

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lenic, offers a day of adventure in a nature park where students can get in touch with water, create a river course and take part in quizzes and action challenges all in an outdoor classroom.

Competitors in the Danube Challenge are chosen from the participants of the 'Aktion Trinkpass' initiative, a campaign by Generation Blue and Römerquelle to playfully encourage young people to analyse their water consumption. Programmes such as the Trinkpass and Danube Challenge have been very successful, with teachers across the country requesting over 30,000 Trinkpass packets each year.

Support across stakeholders and generations. As the platform has continuously reinvented itself, success over the last ten years has been possible thanks to overwhelming commitment from internal and external supporters. "From the very beginning, we have found many partners and sponsors who have helped us develop Generation Blue into what it is today – a unique water project for young people in Europe," says Brandstetter.

In the end, the greatest success of Generation Blue is that it is putting power into the hands of young people who will be tomorrow's leaders in water management.

"Generation Blue has always been a work in progress," says Brandstetter. "I look forward to many more exciting water contributions."

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



A new partnership for wetland restoration

A seven-year partnership between WWF and the Coca-Cola Company is working to conserve and restore vital wetland habitats and reconnect former floodplains in six Danube countries by 2020.

Fish and wildlife will benefit from the restoration projects as will reconstructed wetlands that help conserve freshwater resources.

Over the past 150 years, the Danube has seen 80% of its floodplains and wetlands disappear. This damage has mainly been caused by dykes, dredging and damming, which has taken place for a number of reasons including the need for hydroelectric power and shipping, and to keep floodwaters at bay. As a result, damaged wetlands can no longer provide much needed biodiversity hotspots – plummeting fish and wildlife populations – or act as buffers to floodwaters.

At the end of the 12th Standing Working Group meeting of the ICPDR in Sofia, the WWF – the nature conservation organisation – and The Coca-Cola Company announced a seven-year partnership called ‘For a Living Danube’. The partnership aims to restore wetland habitats and floodplains in Hungary, Croatia, Serbia, Romania and Bulgaria and a unique habitat in Austria.

“Together, WWF and The Coca-Cola Company – alongside local authorities and organisations in the countries that the Danube River passes through – will conserve and restore these vital wetlands and floodplains for the benefit of people and nature,” said Andreas Beckmann, Director of the WWF Danube-Carpathian Programme. “At the same time, we intend

to create a regional movement for wetland conservation and restoration, as well as good water stewardship.”

A variety of measures will be undertaken, such as removing dykes and dams to reconnect former floodplains, restoring the habitats of threatened and endangered species and recreating river side-arms to improve flood retention capacity and ecotourism opportunities. In all, nine projects will restore wetland habitats with a total area of over 7.400 football pitches (53 km²) and increase the river capacity by the equivalent of 4.800 Olympic sized swimming pools (12 million m²) by 2020.

A record size in restoration projects. The long-term partnership between The Coca-Cola Company and WWF has helped improve the ecological health of seven of the world’s most important freshwater basins (including the Danube), improved the Coca-Cola system’s water efficiency by 20%, worked to prevent 5 million metric tons of CO₂ emissions across Coca-Cola’s global manufacturing operations and promoted more sustainable agricultural practices in the company’s supply chain.

“We’ve been working with the WWF since 2007 to help conserve freshwater resources around the world and to make meaningful

changes to our business,” said Ulrike Sapiro, Director of Community and Environment for Coca-Cola in Europe. “This is the biggest single programme in Europe that The Coca-Cola Foundation has supported to date.”

The total cost of the restoration projects of the ‘For a Living Danube’ partnership is estimated at US\$14 million, with US\$4.4 million coming through the grant of The Coca Cola Foundation, and the rest from EU funds and other sources.

To raise awareness of wetland conservation and restoration, a Living Danube Tour will visit more than 25 locations across Bulgaria, Croatia, Hungary, Romania and Serbia by the end of summer 2015. The tour demonstrates the importance of wetlands and floodplains for the wellbeing of people and nature using engaging and educational tools.

Konstantin Ivanov is regional head of communications at the WWF Danube-Carpathian Programme.

The long-term partnership between The Coca-Cola Company and WWF has helped improve the ecological health of seven of the world's most important freshwater basins, including the Danube.

© WWF, Wonders of Europe/Ruben Smit/WWF



RESTORATION PROJECTS AT A GLANCE

Bulgaria

The projects will focus on the Lower Danube Green Corridor, one of Europe's most ambitious wetland protection and restoration initiatives. The aim is to restore over 30km² of river habitats home to six threatened and endangered fish species by removing migration obstacles and building a fish pass. This restoration work, along with targeted conservation activities for these species (such as restocking), will help improve the river's conservation status.

Croatia and Hungary

The restoration work will be conducted on the Barcs–Old–Drava oxbow, a natural riverside lake on the left side of the Drava River. Led by Hungary, this transboundary restoration work will demonstrate a simple and cost effective way of improving the ecological status of the wetlands and surrounding forests, so as to develop ecotourism.

The project will also focus on restoration activities along the Drava River in Croatia, which is part of the future five-country Mura–Drava–Danube Transboundary Biosphere Reserve, sometimes referred to as “Europe's Amazon”, as it stretches from Austria,

across Slovenia, Hungary, Croatia and onto Serbia. The aim is to restore or recreate five sidearms to improve natural river dynamics and habitats, flood risk mitigation, ecotourism and recreation.

Romania

The projects will focus on restoration work at the former Garla Mare Fish Farm along the Lower Danube Green Corridor. The aim is to connect the transformed wetlands to the Danube River – which will not only produce ecological benefits, but will improve the river's retention capacity in the event of future flooding. It will also provide ground for sustainable land use such as grazing or bee keeping. In total, 5 million m³ of freshwater will be returned to nature.

Serbia

The project will focus on restoration work on the Bestrement oxbow, situated in the Special Nature Reserve Gornje Podunavlje. This lies in the Danube floodplain, but is disconnected from the river by dykes and almost totally overgrown by reeds and willows that are closing the open water. In the past, the area was a very important breeding site and migration stop-

over for up to 700 pairs of heron, but it has vanished as a result of drying and lack of feeding sites. The aim is to improve the water regime throughout the year using existing irrigation canals by construction of a sluice.

Austria

The project aims to restore the last soda lakes, a unique habitat next to Lake Neusiedl and close to Coca-Cola's Edelstal production facility. These milky-white lakes are threatened by poor drainage channels and consequently by lower ground water levels, which interrupts salt transport from the groundwater to the soil surface. The project will close drainage ditches and thus raise the groundwater table to former levels, bringing back to nature 650,000 to 1,000,000 m³ of water. Local tourism – which is dependent on the abundance of birds around the salt habitats – will also benefit, as well as agriculture, which also suffers from the current low ground water level.

Additional wetland restoration projects in Hungary, Romania and Bulgaria will lead to nature development, flood risk reduction and the enhancement of sustainable land use and economics in their regions.



EU auditors found that cross-compliance and rural development funding have had a positive impact, but these instruments are limited, relative to the policy ambitions set for the CAP, and the even more ambitious goals set by the CAP regulations for the 2014–2020 period.

Water concerns not sufficiently met by the EU Common Agricultural Policy

A report by the European Court of Auditors reveals that the EU has in some regards failed to integrate water policy goals into the common agricultural policy.

The Common Agricultural Policy (CAP) represents just under 40% of the EU budget (over €50 billion for 2014) and through the CAP the EU seeks to influence agricultural practices affecting water. The EU auditors examined whether the EU's water policy objectives are properly and effectively reflected in the CAP, at strategic and implementation levels. This involved analysing two instruments, which are being used to integrate the EU's water policy objectives into the CAP: cross-compliance, a mechanism linking certain CAP payments with specific environmental require-

RECOMMENDATIONS FOR CAP INTEGRATION

The special report No. 4/2014, 'Integration of EU water policy objectives with the CAP: a partial success', found a mismatch between the ambition of the policy objectives and the instruments used to effect change. Based on its findings, the auditors recommended that:

- The EU Commission propose the necessary modifications to the current instruments (cross-compliance and rural development) or new instruments capable of meeting the more ambitious goals for the integration of water policy objectives into the CAP.
- Member States should address the weaknesses highlighted in cross-compliance and improve their use of rural development funding to better meet the water policy objectives.
- The Commission and Member states must address the delays in implementation of the Water Framework Directive and improve the quality of their river basin management plans by describing individual measures and making them sufficiently clear and concrete at an operational level.
- The Commission should ensure it has information that is capable of measuring the evolution of the pressures placed on water by agricultural practices, and the Member States themselves are requested to provide data on water in a more timely, reliable and consistent manner.

ments, and the rural development fund, which provides for financial incentives for actions going beyond compulsory legislation to improve water quality.

The EU auditors found that cross-compliance and rural development funding have had a positive impact, but these instruments are limited, relative to the policy ambitions set for the CAP, and the even more ambitious goals set by the CAP regulations for the 2014–2020 period.

The auditors also found that monitoring and evaluation systems, both those directly related to the CAP and those providing more general data, did not provide the information necessary to fully inform policy-making as regards pressures on water coming from agricultural activities, though they noted some useful initiatives.

A short video interview with Kevin Cardiff, who was responsible for the report, can be watched at: www.icpdr.org/main/cap-water.

Danube Watch Questionnaire

Communication is a two-fold process: providing information is followed by receiving replies. For this issue of Danube Watch, we would like to change to the receiving end and ask you, our readers, to provide us with some feedback on the magazine. In particular, we would appreciate your replies to the following questions – please send your replies by mail or electronically to the address below.



ICPDR Secretariat
Vienna International Centre, Room D0412
Wagramer Strasse 5, A-1220 Vienna, Austria
E-Mail: icpdr@unvienna.org

FORMAT

1) Do you think the layout of Danube Watch is up to date?

- Yes
- No

If no, what could be improved?

.....
.....

2) Do you prefer to read Danube Watch in print or on icpdr.org?

- Printed issue
- Online on icpdr.org

CONTENTS

3) Danube Watch should provide more information related to the following topics:

- Water quality and pollution
- Landscape- and biodiversity, connectivity, etc.
- Flood risk management
- Accident prevention, disaster management, warning systems
- Integrative challenges such as navigation, climate change, etc.
- Social aspects (environmental education, outreach, public participation)
- Global trends on water management from outside the Danube Basin

4) Danube Watch should publish more:

- Articles from ICPDR countries / contracting parties
- Articles from ICPDR observers
- Articles related to the Danube and water by organisations from outside the ICPDR
- Articles on water and the the environment by organisations from outside the Danube Basin

MISCELLANEOUS

5) Would you use cross-links between Danube Watch and social media such as Facebook?

- Yes
- No

6) How many people read your issue of Danube Watch on average?

- Only me, I don't share!
- 2
- 3
- 4
- 5 or more

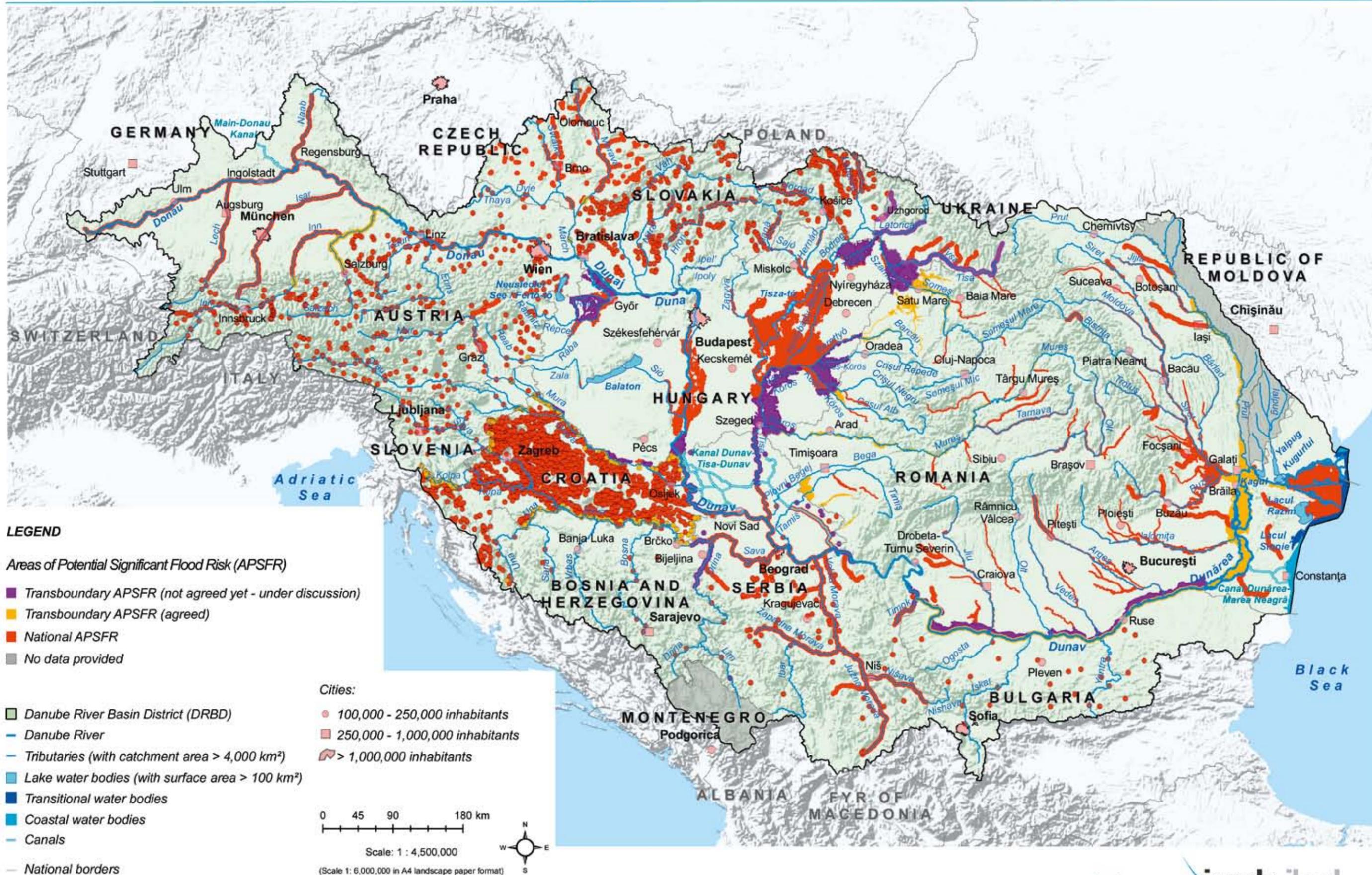
7) What else you would like us to know?

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ICPDR MEETINGS	For final dates, please consult the ICPDR calendar, available at www.icpdr.org .
21-25/7/2014	MANAUS, BRAZIL WORLD'S LARGE RIVERS CONFERENCE
31/8 – 5/9/2014	STOCKHOLM, SWEDEN STOCKHOLM INTERNATIONAL WATER WEEK
10-11/9/2014	VIENNA, AUSTRIA 19TH GROUNDWATER TASK GROUP MEETING
16-17/9/2014	BUCHAREST, ROMANIA 26TH FLOOD PROTECTION EXPERT GROUP MEETING
18-19 OR 25-26/9/2014	VIENNA, AUSTRIA TENTATIVE: 13TH HYDROMORPHOLOGY TASK GROUP MEETING
24-26/9/2014	MIKULOV, CZECH REPUBLIC 4TH MEETING OF THE CONFERENCE OF THE PARTIES TO THE CARPATHIAN CONVENTION
30/9 – 1/10/2017	ZAGREB, CROATIA 19TH INFORMATION MANAGEMENT AND GEOGRAPHIC INFORMATION SYSTEM EXPERT GROUP MEETING
2-3/10/2014	BUDAPEST, HUNGARY SUSCO 2014 BUDAPEST – SUSTAINABLE DEVELOPMENT CONFERENCE
7-8/10/2014	ZAGREB, CROATIA 20TH MONITORING AND ASSESSMENT EXPERT GROUP MEETING
13-14/10/2014	GENEVA, SWITZERLAND 5TH UNECE WORKSHOP ON ADAPTATION TO CLIMATE CHANGE IN TRANSBOUNDARY BASINS
27-29/10/2014	VIENNA, AUSTRIA 6TH EUROPEAN RIVER RESTORATION CONFERENCE AND AWARD OF 2ND IRF EUROPEAN RIVERPRIZE
16-17/11/2014	TO BE DETERMINED 16TH PUBLIC PARTICIPATION EXPERT GROUP MEETING
DW 03/14	UPCOMING ISSUE

Danube Day 2014
Results of Joint Danube Survey 3
News on the Danube sturgeons

Danube River Basin District: Preliminary Flood Risk Assessment (PFRA)



This ICPDR product is based on national APSFR information provided by Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, RO, RS, SK, UA). More details on the methodologies used for identification of APSFR at the national level and the definition of significance criteria are provided in the report "Preliminary Flood Risk Assessment in the Danube River Basin", chapter 5.1. National borders data was provided by the Contracting Parties to the ICPDR and CH; ESRI data was used for national borders of AL, ME, MK; Shuttle Radar Topography Mission (SRTM) from USGS Seamless Data Distribution System was used as a background layer; Data from the European Commission (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

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