DANUBE WATCH

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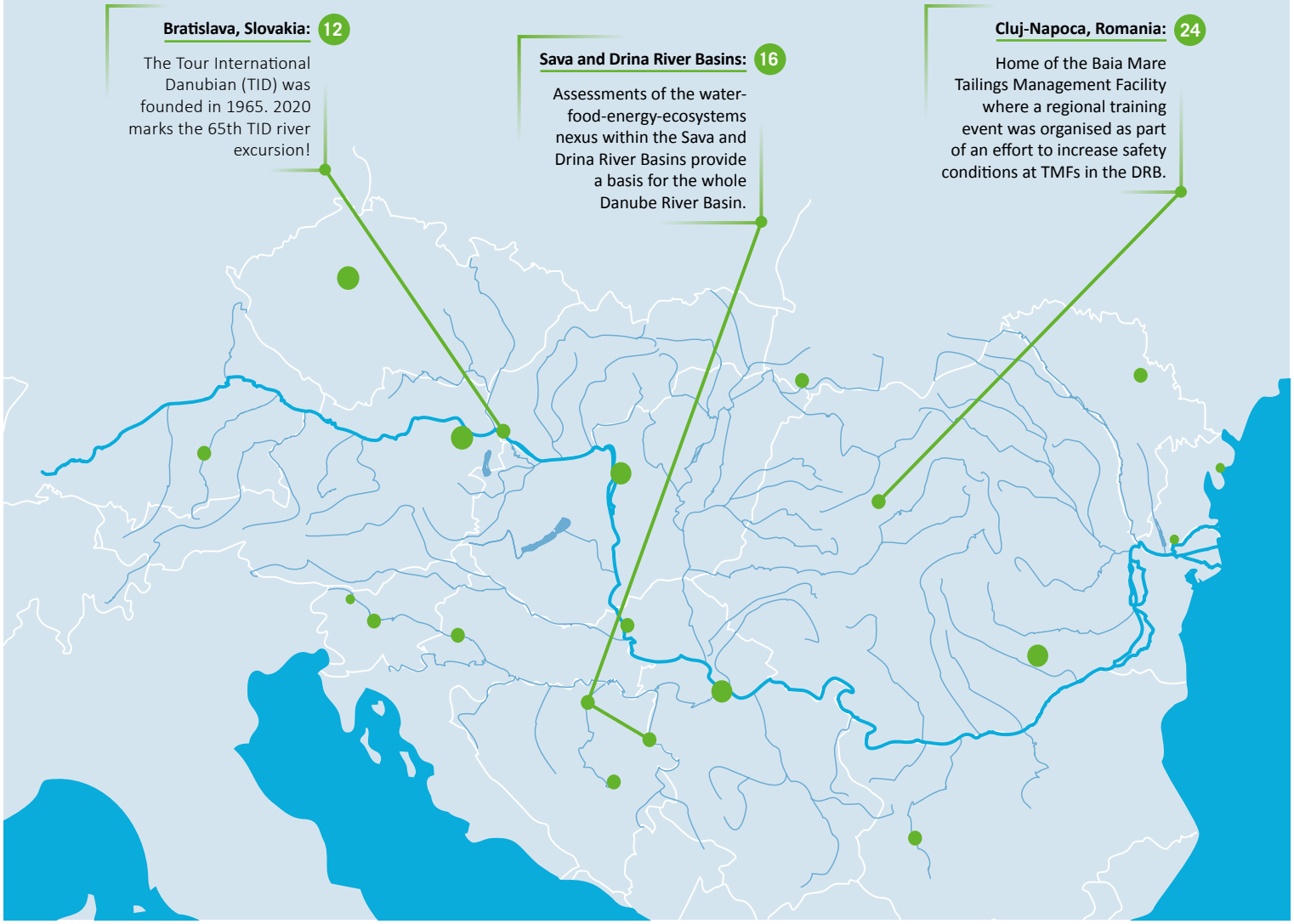
ICPDR IKSD
International Commission for the Protection of the Danube River
Internationale Kommission zum Schutz der Donau





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Dear readers,

Agriculture and water play a crucial role in both Agenda 2030 and the UN Sustainable Development Goals (SDGs). They are particularly important for Sustainable Agriculture (SDG 2) and Sustainable Water Management (SDG 6), and form an essential backdrop for many others. Neither goal can be achieved independently of the other. Water is an essential requirement for agricultural production, in a situation that grows ever more complex as the world population continues to increase. At the same time, farming activities can put significant pressure on water bodies in terms of pollution and over-abstraction. This means that it is essential to strike the right balance between maintaining agricultural productivity and ensuring that water and water-related ecosystems are managed in a sustainable fashion.

In the EU, where more than half the territory is given over to agricultural activities, the delicate balance between agriculture and water ecosystems is maintained through the interplay between environmental and agricultural legislation. The most relevant EU laws in this context are the Water Framework Directive, the Nitrates Directive and the EU regulations under the Common Agricultural Policy (CAP). The CAP is increasingly geared towards ensuring both a stable income for farmers, and remuneration for the role they play in delivering public goods that secure the good functioning of natural ecosystems. Agricultural services of this nature are normally not paid for by the market.

The European Commission has tabled a proposal for further reforms of the post-2020 CAP. It aims to simplify and modernise the way the policy works, and ensure a more effective delivery of significant added value for farmers and society. The proposal shifts the approach from compliance towards performance, granting Member States more freedom in deciding how best to meet common objectives while granting them responsibility to address the specific needs of their territory, their farmers and rural communities. One central objective will be to foster sustainable development and the efficient management of natural resources such as water, soil and air. Based on an assessment of needs, Member States will have to design and present a national CAP Strategic Plan setting out their path to achieving these EU objectives. In keeping with the commitment to increase the level of environmental and climate ambition, the proposal for the post-2020 CAP introduces new elements that contribute to addressing nutrients, pesticides, and abstraction – the three main agricultural pressures affecting water.

Digitalisation also presents new opportunities for optimising the way natural resources are used. New technologies and scientific knowledge are a critical enabler for attaining the sustainability goals of the sector. Combined with increasing public awareness and demand for sustainable food, it will benefit all stakeholders.

Farmers' role to tackle climate change and protect the environment will have to further increase in the context of the European Green Deal, boosting the protection of our waters under the Water Framework Directive. The CAP and the climate and environment plans and legislation will be key tools to support such increased ambition while ensuring a decent living for farmers and their families.

Pierre Bascou, Directorate D - Sustainability and Income Support Directorate-General for Agriculture and Rural Development (DG AGRI)

Veronica Manfredi, Director for Quality of Life in Directorate-General Environment (DG ENV) in the European Commission

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IMPRINT

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Online publishing: Alex Höbart; **Cover photo:** © Karsten Würth, One resource is vital to agriculture: water. Maintaining the health of the Basin's waters is necessary to ensure a sustainable agriculture in the future.

Danube Watch is the official magazine of the 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 to improve its environment.

News & Events

Danube Art Master Competition 2019: Winners Announced

Vienna, 8th October 2019 - In a vintage year for young creativity in the Danube River Basin, the judges of the Danube Art Master competition found it especially challenging to pick a winner. Therefore, in 2019 there are three equal winners in the overall artwork category – plus one winner for the video category.

Austria's *Lieblingsort* ('Favourite Place'), by first graders of the 1c class of Wehlistrasse Elementary School in Vienna; Serbia's *Dunavsko Tkanje* ('Danube Fabric'), by Danica Jović, Nađa Stanković, Jana Mladenović and Stevan Stojanović from the Stefan Nemanja Primary School; and Croatia's *Dunav* ('Danube'), by Ilija Kovač, Antonio Saks and Martina Matanovac from the Slatinik Drenjski Primary School in Drenje. All three artworks received the same amount of total points from the international jury making them equal first place winners.

In the video category, Klara Hardi from the OŠ Antuna Bauera School in Croatia won with the short video *Danube*. Second place in the video category went to Slovak students from the Súkromná Stredná Umelecká School of Design in Bratislava for their energetic short clip, *More Planet, Less Plastic. Water is the Source of Life* was our third place video winner from Tržišče in Slovenia.

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The Danube Art Master competition is an opportunity for the children of the Danube River Basin to consider and discover the health of their local rivers, and a moment to decide how they wish to help preserve these waters for the future.

The competition was jointly organized by the ICPDR and the Global Water Partnership Central and Eastern Europe (GWP CEE).

ICPDR Co-Organises International Workshop on Water and Agriculture in the Danube River Basin in Budapest

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The first "International Workshop on Water and Agriculture in the Danube River Basin" took place on November 6th-7th 2019 in Budapest, Hungary. The workshop was co-organised by the ICPDR along with the Hungarian Ministry of Interior, the Hungarian Ministry of Agriculture and the Danube Strategy Priority Area 4, and was hosted by the Hungarian Ministry of Agriculture.

In line with the EC initiative of aligning water and agriculture policies in the post-2020 CAP, the ICPDR has launched a dialogue with the agriculture sector with the aim of developing a guidance document on sustainable agriculture. This document will aid Danube countries with preparing and implementing their national agri-environmental policies, CAP Strategic Plans and relevant strategies related to their River Basin Management Plans. The guidance document will include a set of recommended instruments and tools to facilitate national decision-making for water and agriculture and to identify common goals, set up tailor-made policies and implement joint actions and cost-effective measures within a consistent policy framework.

The main objective of the workshop was to bring together experts and stakeholders from the water and agriculture sectors to discuss the needs and challenges of both sectors, to share ideas and thoughts on better alignment of the two sectorial policies, exchange good examples and experiences on sustainable agricultural practices and provide input for the finalisation of guidance document.

ICPDR's We Pass Project Holds its 1st Stakeholder Workshop


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On Thursday 12 December 2019, We Pass – an EU-funded project led by the ICPDR aiming to facilitate fish migration and habitat conservation in the Danube River Basin – held its first stakeholder workshop on the banks of the Danube River in Vienna, Austria.

For the first stakeholder workshop under Activity 4 – communication, pertaining to We Pass, the aim was to make the event more of a 'training and brainstorming session', with a view towards equipping key project players with the tools necessary to conduct stakeholder workshops at both the national and local level. We Pass' aims of addressing the very specific issue of how to open up fish migration routes in the DRB require the project to take a people-first approach to building its messages and communication methodology.

For this purpose, a variety of related projects from throughout the region were invited to attend the workshop. In attendance were representatives from the following organisations addressing the plight of migratory fish:

- Danube Sturgeon Task Force (DSTF)
- MEASURES
- LIFE Sterlet
- Ex-Situ / Hatchery facilities
- Plovput Stakeholder Forum
- EUSDR PA4

On a broader scale, this workshop represented the next major step forward in raising awareness of the plight of migratory fish (in particular sturgeons) around the Iron Gates, and was a coming together of the key players able to take the project forward into the future. As a result of this workshop, We Pass has a new set of messages and goals designed to drive the project through to its conclusion, with a final event due to be held in November 2020.

22nd ICPDR Ordinary Meeting Held

The 22nd ICPDR Ordinary Meeting was held in Vienna, from the 10th to the 11th of December 2019.

2019 ICPDR President, Mr. Péter Kovács opened the Ordinary Meeting. He highlighted the 25th Anniversary of the signing of Danube River Protection Convention (DRPC) and presented the key achievements of the Hungarian Presidency which include progress in climate change adaptation, the organisation of JDS4 being the major river monitoring activity, continuing cooperation with other sectors, good cooperation with the EUSDR and the ICPDR's sturgeon strategy implementation running successfully. The President underlined that more effective cooperation with the agriculture sector is still needed.

Mr. Dorin Andros, State Secretary of the Ministry of Agriculture, Regional Development and Environment, was nominated by the Republic of Moldova to be the President of the ICPDR for 2020.


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The Session was particularly devoted to the budgetary situation and ICPDR administration, discussion on Expert Groups' work, the organisation of the 4th Joint Danube Survey, ICPDR Sturgeon issues, as well as international cooperation, partnerships and projects.

A Specialised Approach to a General Concern:

The ICPDR's New Agriculture Guidance Document

Agriculture is an important component of the economy in many Danube countries. This is due to the fact that large parts of the Danube River Basin contain conditions favourable to agriculture, with over half of the river basin area being used for agricultural cultivation. Within the Danube region, agriculture acts as a major source of employment while also providing a good deal of base commodities which are needed to create processed foodstuffs. Unfortunately, even though agriculture is substantially subsidised by the EU and national governments, the sector is facing socio-economic challenges.

Agriculture, however, is not among the strongest economic sectors in the Danube River Basin. Because of economic conditions, the level of agricultural production is low in many regions, especially in Danube countries where very small farms (a few hectares) which depend heavily on national or EU subsidies and are especially vulnerable to external pressures such as market fluctuations, weather conditions or plant and animal diseases are the norm.

Due to the fact that agriculture in general requires a large amount of clean water, intensive agriculture may lead to issues related to the quantity and quality of surface and groundwater through pollution, over-extraction and problematic land management. This then threatens the ecological status of whole bodies of water while also jeopardising the sustainability of the agriculture sector's own water resources.

One of the most significant water management issues (SWMI) within the Danube River Basin, nutrient pollution, is very much connected to agriculture, and has led to the risk that about 20% of the region's surface waters may fail to meet good ecological status by 2021. The Black Sea, into which the Danube flows, also stands at high risk of eutrophication caused by nutrient loads because of its isolation.

Water scarcity and drought situations are increasingly becoming serious issues in the Danube River Basin with a series of drought periods seen in 2003, 2007, 2011, 2012, 2015 and 2017. These situations are only expected to become more frequent, intense and longer in the future which will dramatically affect water-dependent agriculture. As an example, the drought in 2017 is estimated to have been responsible for an economic loss of more than a billion Euros within the Danube countries.

Water management and agriculture must be closely aligned in order to ensure the protection of water resources and the continued production of quality foodstuffs concurrently. Effective dialogue between these two sectors is still being developed to tackle the numerous multi-dimensional challenges present. Danube countries

agreed to begin the creation of a guidance document on sustainable agriculture with the understanding that the socio-economic situation across the region must be improved in order for any agro-environmental policies to succeed.

To this end, agriculture and water policies need to be created with the specific intention of avoiding income losses to farmers while protecting waters. Policies and mindsets must be shifted away from more traditional command-control style enforcement of regulations to one in which farmers' economic perspectives are at the forefront. This new direction should be based on open dialogue, mutual trust and common understanding. Only in this way can a sustainable agriculture policy be developed that will allow for future agricultural and rural development without accepting nutrient pollution, water scarcity or income loss as unavoidable side-effects. This initiative is fully in line with the current political momentum of aligning water and agriculture policies at the EU level and the stronger ambitions of the proposed Common Agricultural Policy (CAP) post 2020 regarding environmental protection and climate change adaptation.

To achieve its ambitious goal, the Agriculture Guidance Paper recommends sound policy instruments, financial programmes and cost-efficient agricultural measures for decision makers. It offers Danube countries a framework and support for the preparation and implementation of their specific national agro-environmental policies, CAP Strategic Plans and relevant strategies of the River Basin Management Plans.

It provides specific advice on the efficient implementation of existing legislation (e.g. Nitrates Directive, cross-compliance/conditionality of the CAP) while also helping to identify, target and finance supplementary measures. The Guidance Document not only offers potential options for targeted, individualised and cost-effective national measures, it heavily encourages them and recognises their inherent advantages as opposed to a singular over-arching regional policy.

In order to address the environmental and sustainability challenges of agricultural production in the DRB, Danube countries are encouraged to:

1) Flexibly design their nationally-specific measures;

2) Strongly and actively promote nutrient management planning to farmers via information, knowledge exchange and advisory activities funded in the new CAP Strategic Plans;

3) Examine the potential of the new, flexible and potentially very effective voluntary 'eco-schemes';

4) Commit to the development of alternative DRB-specific approaches for voluntary agro-environment-climate interventions with particular focus on the development and implementation of collective / cooperative approaches and result-based payment schemes for more sustainable soil and water management;

5) Make a significant investment in strengthening Farm Advisory Services and building an Agricultural Knowledge and Innovation Systems for sustainable agriculture in the DRB as well as pay much greater attention to the capacity building of all actors (farmers, advisers, researchers, small and medium-sized enterprises etc.)

6) Promote the concept of Smart Villages as an emerging and potentially well-suited opportunity for rural communities in the DRB, making the best use of technology and social innovation.

While crafting policy, Danube countries are encouraged to consider a partnership-dialogue between the agriculture and water sectors to develop a cross-sectoral and mutual understanding of needs, expectations and constrains of the two areas. This also includes fully embracing novel technologies, new policy implementation techniques, strengthened advisory services and efficient knowledge and innovation systems laid out in the Guidance document in order to achieve the best results.

The Agriculture Guidance Document should be seen as a living document, open to updating and fine tuning. This is especially true regarding discussions on CAP post-2020 and additional input from the agriculture sector. To this end, follow-up workshops and consultation are planned to bring together relevant sectors and stakeholders in order to ensure that all aspects of the Guidance Document are as efficient and effective as possible in driving sustainable agriculture and water.

EU CAP info:
https://ec.europa.eu/info/

ICPDR Position Paper on Water and Agriculture:
http://icpdr.org/

Water and Agricult Workshop

Budapest, 6th-7th November 2019

On the 6th and 7th of November this year, the ICPDR jointly organised and held a conference in Budapest on water and agriculture in the Danube River Basin together with the Hungarian Ministry of Interior, the Hungarian Ministry of Agriculture and the Danube Strategy Priority Area 4. During the conference, many experts were able to present information on a range of subjects related to agriculture and discuss views with their peers in organised work-groups.

From the beginning, the idea of the conference was to bring these experts from the agriculture and water sectors together along with relevant stakeholders in order to share ideas and thoughts on better alignment between the two sectorial policies, exchange good examples and experiences on sustainable agricultural practices and provide input for the finalisation of a guidance document on sustainable agriculture. This guidance document is meant to aid Danube countries in the preparation and implementation of their national agri-environmental policies, CAP Strategic Plans and relevant strategies related to their River Basin Management Plans.

Over the two days, presentations and discussions were divided into thematic blocks to provide a greater focus on important topics relating to the over-arching concept of sustainable agriculture within the DRB. The first day consisted of several key introductory statements, thematic presentations to provide a general background, followed by specified presentations on issues relating to nutrient management, drought issues and the concepts of science and innovation in agriculture. These were then followed by moderated rotating "breakout group" discussions on these three main issues: nutrients, drought and science/innovation.

The idea behind the breakout group sessions was to provide the conference participants the opportunity to more thoroughly discuss these topics based on the day's presentations as well as their own knowledge base. With sessions and groups rotated after 45 minute discussions, all were afforded the chance to offer their own unique insight as well as broaden their understanding based on that of others including the experts who had provided more in-depth presentations on the subjects earlier. In preparation for the group discussions, conference participants had been asked to consider three key questions:

- What are the key needs and core interests of both the water and agriculture sectors in your region?
- What do you see as the main future challenges facing the two sectors as we enter 2020?
- What goals need to be met and which actions might be needed for the situation to improve?

The second day of the event was structured a bit differently. Whereas the first day addressed the challenges in the water and agriculture sectors, the second day was dedicated to conclusions. The rapporteurs of the breakout sessions brought details back on each of the three pillars. The main findings of the sessions were reported to the audience followed by a moderated discussion and feedback session. This allowed for even further expansion upon previous smaller group discourse with greater input from a wider base as well as the addition of a full evening's time for thought and reflection.

The final thoughts on the three main concepts were also laid out on the second day, focusing on needs, challenges and solutions. Within the nutrients group, some key needs highlighted were win-win solutions, dialogue, knowledge and communication and research. Challenges included the discharge of pollutants, coordination and erosion control. A few potential solutions suggested were

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advisory services, sustainability-based solutions and monitoring.

The drought group thought that, among others, securing food and agriculture production in times of drought and food quality were important needs. Challenges included the adaptation of measures by member states, knowledge sharing and smart dialogue with farmers about their role. Many solutions were thought up. Among them were improved cooperation between sectors, improved knowledge sharing and for all member nations to have a drought action plan in place.

Lack of integrated projects and those with a holistic approach as well as a lack of practical implementation of project results were some of the problems thought up in the science/innovation group. Suggested solutions were better synchronisation and coordination of projects and better communication with farmers, including access to translators. Participants recommended that water managers should try to come to the events where the farmers meet and speak with them personally and vice versa because dialogue is very important.

In addition, two presentations provided good examples and outlook for further steps and potential solutions. Specifically, on aligning water and agriculture policies, followed by a short question and answer session relating to the topic. The theme of better communication between all stakeholders remained very much in focus, driving home its importance at all levels.

A final session was held that acted to highlight the proposed Guidance Document on sustainable Agriculture. After a presentation providing a background introduction to the document, time was provided for discussion amongst the attendees and for all feedback to be voiced and collected. This allowed all to reflect on what was said, what needs to be done and what concrete steps are necessary to finalise the ICPDR guidance document on sustainable agriculture as well as to get from the concept to the implementation stage. Prior to the conference, participants were again asked to consider several questions in order to be prepared for this specific session:

- What needs to be improved, changed or added for the final version?
- How can the document be made more attractive to policy makers?
- How can this document help us to reach relevant agriculture stakeholders?

The success of the conference was in the exchange of ideas and dialogue that was fostered which allowed technical experts and stakeholders to better understand various ideas and views on the future of sustainable agriculture in the Danube River Basin. This applies to the future and what needs to be done in order to ensure the continued betterment and preservation of the region's waterways.

Nutrient Pollution from Agriculture:

Strategies, Effects and Communication

Christian Schilling and Franz Überwimmer

Agriculture is an important component of the economy in many Danube countries since the geographic and climate conditions in large parts of the Danube River basin (DRB) are favourable for agriculture. More than 50% of the basin territory is being cultivated. Agriculture plays a key role as a local and regional supplier and is one of the most important employers in rural areas of the DRB.

Nutrient pollution in the Danube River Basin and the Black Sea is still one of the major water management issues. Nutrient pollution in the Danube River Basin is caused largely by agricultural activity, but also, to a considerable extent, by discharges of untreated wastewater. But how can the protection of DRB water bodies and Black Sea coastal waters be ensured? How can the efficient use of resources, fertilisers and manure for nutrition and water for irrigation be ensured?

Sustainable agriculture is the key to achieving a good status for rivers and a favourable socio-economic situation in rural areas. Prerequisites are the profitability of farmers, competitiveness of agriculture and vitality of rural areas. Economic growth and decrease of nutrient pollution are equally needed.

The ICPDR, within its task to reduce nutrient pollution from diffuse sources and to mitigate drought impacts in the Danube River Basin, has set up a Nutrients Task Group (NTG) to bridge the interests of the agriculture and the water management sectors. Last year, the NTG developed a guidance document on sustainable agriculture with recommendations on how to make use of sound policy instruments, financial programmes and targeted, cost-efficient agricultural measures.

The guidance document on sustainable agriculture points out how to decouple agricultural development from pollution. This guidance gives insight into the framework providing consistent strategic policy approaches into which the Danube countries are encouraged to integrate their individual national methods.

The new Common Agricultural Policy proposal (CAP post 2020) and the design and implementation of the national CAP strategic plans offer a specific chance to create win-win solutions by meeting local needs and objectives of farmers while improving the environment and to increase the resilience to climate change.

The Austrian perspective - as ICPDR contracting party and EU member state - on agriculture and water pollution stemming from agriculture in light of the new CAP and the agriculture guidance position paper

Contracting parties of the ICDPR, as well as EU member states, have already started the second update cycle of their River Basin Management Plans. On national levels, as well as on the Danube River Basin level, Significant Water Management Issues had to be updated and published in December 2019. What has changed since the first two management plans?

Although progress has been made in implementing measures to reduce the impacts of nutrient pollution from agricultural activity on groundwater and surface waters, it is still one of the Significant Water Management Issues at the Danube Basin level. Water scarcity and droughts have been progressively recognised as an additional challenge - not only for agriculture - in many different regions of the Danube River Basin, with differing intensity but also with higher frequency within the last years.

Diversity of existing instruments to address different pressures due to agricultural activity is needed in Austria. The nitrates action programme is applied throughout the whole territory and provides a basis, with more advanced measures in vulnerable zones for both the protection of groundwater against nitrates as well as protection against erosion and sediment discharge into surface waters. Targeted measures for regions with environmental challenges are provided by regional groundwater protection programmes for specific groundwater bodies.

Voluntary measures (Rural Development Programme) provide the basis for preserving and promoting environmental and climate friendly agricultural practices in less favourable areas and consist of broad measures (e.g organic farming) as well as specific measures for groundwater protection and biodiversity. However, education and awareness-raising initiatives are key for a successful implementation, participation and effectiveness of measures.

The new EU regulation on CAP strategic plans offers the possibility to better align agriculture policy with existing environmental policy instruments and with local conditions to improve environmental performance. Therefore, the timing of the ICPDR guidance document is right to support Danube countries in their ambitions and to make use of best practise examples from different regions of the DRB.

Development regarding communication with farmers and what the future may hold

Precision farming and digital transition is expected to become more important and can support farmers transitioning to more sustainable farming practises. The post 2020 national CAP plans must contain a Strategic AKIS Plan that outlines how advisors, researchers and networks will work together in future AKISs, how agricultural advice innovation support will be provided and as well as a strategy for development of digital technologies.

In order to get the information, advice and training needed for farmers, closer links between research and practice are needed. Researchers create new knowledge, specialists mould this knowledge into information for farmers, advisers work with farmers to implement the new technology and farmers participate in programme reviews.

Stronger advisory services are key to ensure the better use of resources and knowledge available. Innovation should be fostered and disseminated. The EIP AGRI (European Innovation Partnership for Agricultural Productivity and Sustainability) has a strong network and is already firmly embedded in the DRB. It should be made use of!

Advisory services can support digital transition in agriculture via smart devices, precision farming, digitised tools and easy-to-use apps. Thus, yield, income and environmental impact will be optimised in the long run. The CAP proposal introduces a new digital tool called Farm Sustainability Tool for Nutrients (FaST), with the aim of facilitating a more sustainable use of fertilisers according to morphology, yield, crop demand and the nitrogen content of the soil.

Conclusions

From day to day, the area used for agriculture tends to decrease along with the number of farms. The remaining farms tend to increase in size with an intensification of agricultural production likely to happen.

A sustainable intensification aims at an optimised use of resources without compromising environmental aspects. Striving for good cooperation between Agriculture and Water Management with mutual respect and understanding is key in this respect.

In less favourable areas (quite often with a considerable share of high-value nature farmland, threatened by depopulation and land abandonment) integrated rural development is important to keep up traditional agriculture and characteristic landscapes and to offer other income options, which is often only possible with appropriate financial support programmes.

Targeted approaches to address nutrient pollution effectively should provide a basic level of protection to the entire DRB (e.g. nitrates action programmes) and focus more ambitious provisions on large industrial holdings.

Christian Schilling, is a member of the ICPDR Pressures & Measures (PM) Expert Group and the River Basin Management (RBM) Expert Group

Franz Überwimmer, is the Chairperson of the ICPDR Nutrients Task Group (NTG) and a member of the Pressures & Measures (PM)

The Tour International Danubien & the ICPDR

The Tour International Danubien (TID) is a canoe and rowing exploration excursion and is organised on a not-for-profit basis by the water sport and tourism organisations of the countries through which the journey takes place. It extends for over 2,500 km, from Ingolstadt to Sfantu Gheorghe at the Black Sea and goes from the end of July until the beginning of September, during which daily stretches of up to 60km will be tackled. Packs will be taken along in the boats. Participants will camp over night at 62 different camp grounds along the way.

The beginnings of the TID reach back to Bratislava in the year 1965. Back then, it was almost impossible to travel abroad. A group of young tourists came up with the title "International Danube Boat-trip of friendship" and thereby recieved the necessary official permission. The first trip set off in 1965 from Bratislava to Budapest, and then in 1967 to Belgrade. Beginning with the 5th trip, the name was changed to "Tour International Danubien (TID)". Statutes were adopted and the trips went farther and farther to (above all, western) nations.

From the TID statutes: The goal of the trip is for the participants to get to know each other as well as to experience in person the different peculiarities of the Danube countries through which they will travel, such as their cultures and economic and national peculiarities. To this end, the TID serves the deepening of friendship between peoples and the consolidation of general world peace. The TID should further develop water-tourism.

The trips can be begun and ended at any designated campground along the way. Anyone can design the length of their partaking within the frame of the timeframe. Information about the conditions for taking part and the personal conditions can be found on the homepage of the individual national organisers.

Contact with the ICPDR reaches back to 2005. At the time, the 2nd Danube Day took place in Ingolstadt at the same time as the opening of the 50th TID. With the Water Management Office of Ingolstadt as the organiser, an extensive cooperation was secured. The ICPDR provided t-shirts with logos for all the TID participants to enjoy. The TID participated with an info-stand with charts and exhibits. A guestbook was also presented which was taken along the entire length of the journey and in which the current participants wrote at each staging area. It acted as the ambassador of the ICPDR's Danube Declaration. The complete guestbook was handed over to the ICPDR at its Autumn Conference on 12.12.2005 in Vienna by a TID delegation.

During the book's time in Vienna on the Danube Island, it was possible for participants to visit the offices of the ICPDR at UNO-City and inform themselves about the organisation's work.

In 2020 the 65th TID will take place. The diverse impressions of such a trip can be seen in photos at:
www.tour-international-danubien.org

For the future, further harmonising of the formalities regarding border-crossings, traffic regulations for speed boats in the Djerdap upstream from Orsova, as well as sponsorship for the sanitation and toilet facilities at the various staging areas (preferably by a small Danube community organisation) are hoped for.

Author Manfred Ganzer, (Nuremberg, Germany) is a honorary member of the German Rowing Association and has been active in various roles within the TID Organisation.

© All fotos, TID

65. Tour International Danubien (TID) 2020

from 27. June until 10. September 2020

Time-Plan

Germany:	27.06. - 04.07.2020	Ingolstadt – Regensburg – Straubing – Erlau	**www.tour-international-danubien.org**
Austria:	05.07. - 14.07.2020	Inzell – Linz – Vienna - Hainburg	**www.tid.at**
Slovakia:	15.07. - 18.07.2020	Bratislava – Gabčikovo - Komarno	**www.tid.sk**
Hungary:	19.07. - 28.07.2020	Esztergom - Lep. Visegrad – Budapest - Mohács	**www.tid.hu**
Serbia:	29.07.2020	Apatin	**www.kajakss.org.rs**
Croatia:	30.07. - 31.07.2020	Aljmaš - Borovo	
Serbia:	01.08. - 14.08.2020	Backa Palanka – Belgrade - Brza Palanka	**www.kajakss.org.rs**
Bulgaria:	15.08. - 29.08.2020	Novo Selo – Vidin – Russe - Silistra	**www.bftourism.net**
Romania:	30.08. - 10.09.2020	Calarasi -Tulcea - Sf. Gheorghe – Black Sea	**www.tidromania.com**

The Importance of the AKIS for Sustainable Agriculture in the DRB

Reducing nutrient and pesticide pollution from agriculture in the Danube River Basin (DRB) has been an important objective of the ICPDR for many years in support of implementation of the Danube River Protection Convention and EU Water Framework Directive. The ICPDR's recent commitment to broaden this objective and reach out to the agricultural sector with the purpose of developing a more comprehensive 'Guidance Document on Sustainable Agriculture' is very welcome. But there are also many challenges and Mark Redman asks the question - do all farmers in the DRB have access to the information, advice and training they need for making the transition towards more sustainable farming methods?

The ICPDR's commitment to sustainable agriculture builds logically upon the original concept of Best Agricultural Practice (BAP) that was developed and implemented over 15 years ago with the support of the UNDP/GEF. This progression clearly acknowledges two important realities. Firstly, that it is not possible to decouple the renewed risk of increasing agricultural pollution from the trend towards growing agricultural productivity in the DRB without taking a much more holistic perspective on the nature and direction of agriculture in the region. And secondly, that there are multiple drivers of agricultural pollution in the DRB, including some deeply rooted socio-economic issues in the rural areas of the middle and lower DRB, that cannot be addressed simply by "best practice" alone.

Concerted effort is needed by relevant authorities to enhance the enabling conditions for sustainable agriculture in the DRB. Fortunately, the possibility exists for many new and exciting policy interventions to be applied, notably via programming of the post-2020 EU Common Agricultural Policy (CAP) by Member States with territory in the DRB. But there is one central issue that needs careful consideration - the successful pursuit of more sustainable agricultural production inevitably involves a paradigm shift from being "agro-chemical intensive" to "knowledge intensive".

This shift in paradigm is not only related to the increased complexity of managing different agricultural production systems with less mineral fertiliser and pesticides, but also to the current rapid pace of change in agriculture. Farmers in the DRB are facing an unprecedented stream of both exciting new opportunities (e.g. digitalisation) and frightening new challenges (e.g. the climate crisis). As the pace of change and associated uncertainty experienced by farmers increases then so does the need to speed-up knowledge exchange with and between farmers and to accelerate the creation of new knowledge through appropriate (ideally farmer-led!) research and innovation.

Although there is already a substantial amount of existing knowledge (as well as some new knowledge being created by research) which is of relevance to the opportunities and challenges faced by farmers in the DRB, there is a tendency for it to stay fragmented and insufficiently applied in practice. This situation is not unique to the DRB. It is increasingly acknowledged across the EU that the insufficient or too slow uptake of new knowledge and innovative solutions in farming (particularly by small and medium-sized farms) is hindering both the farming sector's immediate competitiveness and its smooth transition towards a more sustainable future.

And this is the point at which a new concept has entered the lexicon of the ICPDR – namely, the concept of the Agricultural Knowledge and Innovation System (AKIS).

The AKIS is a "concept" that is increasingly used to describe the organisation and interaction of all persons, organisations and institutions who create, transfer and use knowledge and innovation for agriculture and related activities. This includes farmers, farmer organisations and farmer networks, advisors, suppliers / buyers and other technical services, agricultural education and training providers, researchers, NGOs, media etc.

The AKIS concept is very flexible. It is most common to discuss the concept at nation-

al level, although it can be equally applied at both international or sub-national (regional) level. It can also be applied at the level of individual farmers, farm businesses or farming families – the so-called micro-AKIS!

There is a great diversity of national / regional AKISs existing in the DRB. Although some examples of strong and integrated systems do exist, in most countries / regions there remains scope to more fully and effectively interlink all actors which generate, share and use knowledge and innovation for agriculture and all interrelated fields. This includes building closer links between research and practice; developing stronger farm advisory services with better resources, better knowledge / skills and new approaches to the organisation and delivery of advice; fostering and disseminating innovation; and supporting the uptake of digital tools by farmers and advisers.

One very interesting policy and networking initiative that was designed by the European Commission and initiated during the 2014-2020 period is the European Innovation Partnership for Agricultural Productivity and Sustainability (EIP-AGRI). The EIP-AGRI aims to speed up agricultural innovation and knowledge exchange at grass-roots level. It is based on an interactive innovation model which promotes collaboration between various actors (e.g. farmers, advisers, researchers, etc.) to identify real needs / opportunities and to make best use of complementary types of knowledge to co-create and disseminate innovative solutions ready to implement in practice.

The EIP-AGRI benefits from a unique set of measures and instruments funded under two European policies working in close synergy: the EU's Horizon 2020 framework programme for innovation and research that runs at EU level plus the rural development budget (Pillar II) of the CAP that is programmed at regional / level by relevant national authorities in the Member States. An important cornerstone of the EIP-AGRI are so-called Operational Groups which are set-up with rural development funding to establish and implement 'local interactive innovation projects' that support the development of innovations by groups of relevant actors in a bottom-up manner.

There are many EIP-AGRI Operational Groups already established in the DRB and they have great potential for creating innovative solutions that will make farming in the region much smarter, more efficient and more sustainable. At the same time EU-level research and innovation projects funded under Horizon 2020 and with partners in the DRB are applying the "multi-actor approach" to bring a diverse range of actors with complementary knowledge to work together on similar issues related to sustainable agriculture and rural areas. Furthermore, other EU programmes such as LIFE Plus and Interreg also include support for innovation and knowledge exchange that can be applied to agricultural issues in the region.

Do all farmers in the DRB have access to the information, advice and training they need for making the transition towards more sustainable farming methods? Definitely not yet. But awareness of the need for more knowledge exchange and innovation is growing and the rolling out of the post-2020 CAP with its obligation for all EU Member States to strengthen their AKISs will surely be 'wind in the sails' for the ICPDR's vision for sustainable agriculture in the DRB.

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The Nexus Approach:
Guiding Sustainable Policy and Motivating Transboundary Cooperation by Understanding How it is All Connected

Land, energy, water and their supported ecosystems are valuable resources. These constitute major sources of food, energy and clean water for those living within the region and beyond. Food, energy and water demands have continued to grow over the years, and the effects of climate change are increasing some of these demands. This is very true of the agriculture sector as a whole. The limited availability and vulnerability of these resources, however, has led to shortages and competition between sectors and users, threatening to affect resource security. Moreover, these resources are all inextricably interconnected, with shortages, overuse and production of one having impacts upon the others, and this relationship is known as a "nexus".

Importantly, land, energy and water are all largely managed at national levels with varying degrees of trans-boundary cooperative management in place in many parts of larger regions. This is especially true as these resources are mainly managed as singular entities with less consideration of their interplay with and connectedness to other major resources and ecosystems. These inter-linkages between water, energy, land and ecosystem resources are strong in many river basins, including the Sava and the Drina Basins where these have been assessed under the Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Understanding the regional nexus, such as how regional power-grids affect the dynamics of river basins, and how nexus-orientated thinking helps with key basin-wide issues can allow for its effective implementation at differing scales.

Shortcomings in inter-sectoral coordination are a major challenge both on the national and trans-boundary level in countries regardless of economic or development status. In a transboundary setting, like the Danube River Basin, the inter-sectoral, cross-border implications as a result of resource trade, shared ecosystems and basin hydrology reach new complexity as trade-offs and external concerns cause friction between riparian countries with their different interests.

Identifying interrelationships between ecosystem services with the related resources they supply and the institutions that govern them is therefore of the utmost importance. The need to understand integrated issues at the trans-boundary basin level is necessary in order to better identify synergies, prevent potential tensions and inform good governance.

Achieving these goals – reducing negative impacts and highlighting opportunities for cooperation – is the main reason for assessing a water-food-energy-ecosystems nexus, especially regarding the further integration of water policy with other sectoral policies. Additionally, advancing an open and constructive dialogue with key sectoral stakeholders, notably in the sectors of energy and agriculture, is highly beneficial. An accurate assessment of relevant issues then allows for increased (or initiated) international cooperation and coordination at regional and basin levels, further allowing for better nexus management than would be possible at an individual national level. Furthermore, this can lead to a more efficient implementation of existing legal instruments, such as EU directives, UNECE standards and Conventions, the Energy Community acquis and other diverse agreements.

Economic growth in some areas of the Danube River Basin is expected to develop faster than the EU average, most likely leading to vastly increased use of water, land and energy resources in the coming years. This would include an increased use of water for irrigation within the agriculture sector and a possible rise in river transportation which requires that river levels be maintained and that sedimentation is effectively managed. Coupled with additional pressure to develop and expand on hydropower resources because of their status as a low cost, domestic resource with greenhouse gas emissions-reduction potential and a means to meet climate mitigation policy targets, potential pressure on nexus resources will be great. The transition to sustainable energy relies on water resources. As an example, of the Sava riparian countries' total installed electricity generation capacity, 53% is in the Sava River Basin and relies on its water for production. There is potential to improve yields of certain crops by optimising irrigation, but both predicted increased water demands for agriculture and increased scarcity would affect hydropower generation. Investigation of these issues in the Sava Nexus Assessment in cooperation with the International Sava River Basin Commission built on some Danube-wide modelling work and provides insights for reflecting on the future. What is evident is that the future of agriculture and land use will also transform the basin as a whole.

It is clear that the importance of inter-linkages here should not be underestimated. The negative impacts that result from the isolated management of one resource can spread from one sector to another. It can also lead to a diminished level of cohesion between policies within two sectors to such an extent that the use of one resource can negatively impact both sectors. Inefficiencies or lost opportunities for economic benefits Inefficiencies or lost opportunities for economic benefits could be a drawback but also represent an opportunity for action. The benefits from improved water efficiency and improved energy efficiency

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are potentially significant as demonstrated by the Danube Learning Partnership. Furthermore, much-needed wastewater treatment can provide both energy and nutrients for agriculture.

Proposed institutional solutions from the Sava Nexus Assessment include further improving the relatively well-developed governance architecture by clarifying roles and responsibilities, particularly regarding the monitoring of basin resources and the application of sustainable development principles in economic and sectoral planning and decision-making. Information solutions include strengthening a shared knowledge base by investing more in monitoring and forecasting. Access to information and the development of guidelines that synthesise good outcomes and harmonise approaches should also be expanded. Infrastructure solutions include refurbishing degraded infrastructure and promoting its multiple and flexible use (e.g. dams, irrigation and drainage systems), and considering green and nature-based alternatives. Expanding and upgrading water infrastructure, such as wastewater treatment plants, while coordinating infrastructure investments in hydropower and other renewable energy sources are also important measures. These solutions should be implemented in conjunction with the protection of natural infrastructure assets like floodplains and wetlands.

The potential benefits of utilising a nexus-orientated approach at a basin or regional level are many and span a range of areas. Economically, it can lead to increased electricity and agriculture production (by optimising water release regimes and improving irrigation systems through coordination and experience exchanged, respectively) and reduced flood and drought damage by strategically planning infrastructure and cooperating in flow regulation. In the Drina Nexus Assessment, quantitative estimation of energy-system benefits of coordinated operation hydropower plants informed an interesting debate, and a follow-up analysis is foreseen to continue the dialogue. Geopolitical benefits, in turn, may include increased cross-border trust because of avoided conflicts and the adoption of cheaper solutions, thanks to the development of connections between experts and officials as well as information sharing. Human and environmental benefits are perhaps most important of all and are expected to include better water quality and ecosystem protection and an increased resilience of local communities to climate change, in large part because of better communication and participation.

While many aspects of a nexus-orientated approach are already being utilised within the Danube River Basin and otherwise encouraged by the ICPDR (e.g. the Guiding Principles on Sustainable Hydropower), there is always room for improvement and expansion. Making clear the complexities of the interconnected relationship between water, food, energy and ecosystems provides a better basis for creating more coherent and synergetic policy proposals and more effectively implementing basin-wide measures across borders, reaching out to the relevant sectors.

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Disclaimer: The views expressed in this article are those of the author and do not necessarily represent the views of the United Nations or its Member States.

To read the full Sava and Drina nexus reports visit: www.unece.org/env/water/publications/pub.html

This year marks the preparation of the ICPDR's third SWMI report: a report on the significant management issues relating to water for the future. The 2019 SWMI Report lays out key issues that will go on to be addressed in the 3rd Danube River Basin District Management Plan (DRBMP), which is meant to apply to the time frame 2021-2027.

According to Article 14 of the EU Water Framework Directive, public participation in drafting River Basin Management Plans needs to be ensured. The ICPDR is at the forefront of public participation activities related to the development of the 3rd DRBMP. Towards the end of last year, the ICPDR adopted the SWMI Report with the intent of collecting public feedback and input by June 2020. This allocated time for consultation with the public is extremely important for providing the opportunity for the citizens of the Danube River Basin to raise their voice regarding the document and to draw attention to additional issues for consideration by future water management planning, hence its inclusion as a key stipulation in the WFD.

Previous SWMI reports in 2007 and 2013 respectively focused on four key issues affecting the health of the Danube River Basin's waters:

- Pollution by organic substances,
- Pollution by nutrients,
- Pollution by hazardous substances and
- Hydromorphological alterations.

Along with the issues laid out within the previous SWMI reports and DRBMP updates, a fifth issue was added: "Effects of climate change (drought, water scarcity, extreme hydrological phenomena and other impacts)". Furthermore, the definition of a new sub-item "Alteration of the sediment balance" under the existing Significant Water Management Issue "Hydromorphological alterations" reflects the growing understanding of and ability to take on an even wider array of issues.

With the various effects of climate change becoming increasingly evident around the world, it has become very important that this problem be addressed at all levels by all stakeholders. To this end, the ICPDR's basin-wide vision to deal with adaptation to and mitigation of water-related effects of climate change (drought, water scarcity, extreme hydrological phenomena and other impacts) is to make full use of our wealth of knowledge on River Basin Management to meet these challenges. The end goal remains to achieve resilience and ultimately sustain the inherent ecological and cultural value of the aquatic environment of the Danube River Basin. Preventive measures will be taken to mitigate the impacts of climate change, to adapt to it and to minimise the related damages, thus reducing the vulnerability of aquatic, and water-related ecosystems to climate change.

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The public is invited to provide comments on the document to the ICPDR Secretariat until 22nd June 2020. Please send your comments to: **wfd-fd@icpdr.org**

Another key element of this current SWMI report is its focus on changes and progress made between the release of the first two SWMI reports, in 2007 and 2013, and now. Also taken into account are the findings of the previous DRBMP and its subsequent 2015 update and the Interim Reports from 2012 and 2018 regarding the implementation of the Joint Programme of Measures (JPM).

The updated JPM will continue to be focused on coordinating with the national programmes of measures from which it takes its form. Important to achieving the best possible outcomes of water management is integration with other sectors' policies. Currently, the ICPDR and other organisations are striving toward broader and deeper exchange with many different sectors including inland navigation, hydropower and agriculture, alongside efforts to coordinate water management with the sustainable management of floods (EU Floods Directive 2007/60/EC (FD), as well as the marine environment (EU Marine Strategy Framework Directive 2008/56/EC (MSFD) and the Black Sea in the particular. This intensification of work with other sectors will thus create helpful synergies while avoiding potential conflicts and points of contention.

The SWMI document further highlights the progress achieved related to other relevant topics important for water management at the Danube Basin-wide level. These topics include sediment quality management, up-dated information pertaining to invasive alien species and the issue of Danube sturgeons along with related ongoing activities.

As stated above, public participation in drafting the future 3rd DRBMP by allowing the public to voice its opinions on the issues laid out in the SWMI document is seen by the ICPDR as being of the utmost importance. The ICPDR updates the DRBMP as well as the DFRMP (Danube Flood Risk Management Plan) at 6-year intervals. These plans lie at the core of the ICPDR's central work programmes, and as the people of the Danube River Basin will be affected by the measures following the plans, they are given the opportunity to have a say in their development from the outset.

By ensuring buy-in and a sense of ownership in our target audience at an early stage of the process, any Basin-wide approach will stand a better chance of success. There are also many benefits to early engagement including a greater likelihood of public acceptance and support and increased awareness of important issues. Additionally, the thorough nature of public participation improves the understanding, decreases delays and facilitates more effective implementation and monitoring, resulting in smoother and more cost-effective solutions.

The DRBMP and DFRMP can then be developed with the strong and interested involvement of civil society and stakeholders from the beginning via public participation events such as workshops. Very often such workshops are organised directly by the ICPDR, frequently with important partner organisations. More often, however, it is the national level at which they are organised by relevant ministries, frequently in conjunction with non-state stakeholder organisations. Public information, educational initiatives and outreach activities are also already being employed to support public participation, in addition to the more general use of social media as a communication tool.

Our scheduled update of the plans for 2021 will continue with this emboldened programme of public consultation, along with information initiatives aimed at keeping our stakeholders and the public well-informed. These include Danube Day – an annual celebration of all things Danube-related on 29th June - the publication of our in-house magazine, Danube Watch, three times a year and consultation workshops such as Voice of the Danube.

With the SWMI report laying out the Significant Water Management Issues within the Danube River Basin, it is also laying the foundation for the focus of the DRBMP. It provides a consensus beneficial for the creation of a shared language and focus, not simply for public information purposes, but also for public participation regarding the issues and how they are to be addressed on a Basin-wide level.

Talking with Two ICPDR Dinosaurs

Two influential personalities reflect on the beginnings of the ICPDR. They were there then, back in the early nineties, working to put it all in place, and they are here now to explain the special circumstances that led to its success.

PEOPLE OF THE DANUBE

In the interview series "People of the Danube", Danube Watch presents personal portraits of individuals who are passionate about the Danube Basin and its waters.

"Wolfgang Stalzer, two-time Head of Delegation and President of the ICPDR, as well as current Goodwill Ambassador and Ivan Zavadsky, current Executive Secretary of the ICPDR and former Head of Delegation of Slovakia, sat down with Danube Watch to discuss the formation of the ICPDR from their first-hand experiences. After 25 years since the signing of the Danube River Protection Convention, the fact that the ICPDR was formed and that it has worked as successfully as it has over the years is surely a special case. In this first instalment of our multi-part sit-down with Mr. Stalzer and Mr. Zavadsky, they focused on the special circumstances in the world that led to the signing of the convention and the creation of the ICPDR.

Wolfgang Stalzer

Intimately close to the waters of the Danube since childhood, bathing and fishing along the banks of the river, Wolfgang Stalzer's career naturally followed a path to water management and international water conservation. Its singular high point? Twice sitting as Austria's ICPDR president in 1998 and 2012. In 2014, Stalzer was also made one of the two first ICPDR Goodwill Amabassadors.

To begin with, the timing of the drive to create a convention that would bring the ICPDR into reality was certainly exceptional. Following the fall of the Berlin wall in 1989, the subsequent erosion of the Eastern Bloc and, in 1991, the collapse of the Soviet Union dramatically changed the state of the Danube River Basin. "What was most essential was the opening up of the entire Danube catchment area to a collective view of water protection along with the beginning of meaningful collective work regarding the collection of data and the use of uniform and comparable methods within the entire region right up to their implementation", explains Mr. Stalzer, "and that was very favourable around the time of the fall of the Iron Curtain".

"This process led to the idea of cooperation after the political opening. It led to having a very strong, stable, efficient mode or model of international cooperation, which is the ICPDR", adds Mr. Zavadsky. "The effect was that the legislative, institutional and management frameworks for water protection in those former Easter-bloc countries improved dramatically. At the same time, the capacity of individuals grew; water managers, scientists, NGOs, everybody". Expanding on this, Mr. Zavadsky emphasised that "this improvement was not only about assistance flowing West to East, North to South or from older member states to newer. Rather, it all worked as mutual enrichment, and still does! No one is working in water management in the region without having in mind what the impact on the whole region and on the other member states will be. This is very unique and has been very successful, also largely due to the support and understanding this concept has at the highest political levels".

The importance of the Danube Environmental Programme, which worked with the World Bank, already having set some instruments in place helped to make their expansion less difficult. "Indeed, there were really two instruments working parallel to each other to achieve this end result", explains Mr. Stalzer. "One was the practical work toward the realisation of collective water protection, from the experts to the execution of studies and the assessment of priorities, etc. That was the practical side, and that was unbelievably helpful for creating understanding and for engagement above all. The other side was the legislative handling regarding the convention. This was difficult because there was very real competition between the different established state control-systems which imagined the activities of practical implementation before there were legislative conditions in place and really worried that through these practical implementations, mechanisms would be put in place that would hinder basic regulatory measures", clarifies Mr. Stalzer.

The need to soothe the concerns of those working in established state water-related control-systems was far from the only difficulty faced that fortuitous timing helped to solve. The debate among parties to the convention about the extent of the convention's focus was strong. Other river conventions had decided to place their focus on the main stem rather than the basin as a whole, and here too some countries pushed for something similar. "At the very beginning of the convention we had this discussion", recalls Mr. Zavadsky. "It must be said that we somewhat inherited the Bucharest

We hope these personal insights into the beginnings of the Danube River Protection Convention and the ICPDR were as entertaining to read as they were for us at Danube Watch to listen to! But we are not done yet. Mr. Stalzer and Mr. Zavadsky provided us with a wealth of memories and experiences that we plan to share in future instalments. Look to future Danube Watch issues to read about the particular modus operandi of the ICPDR that has made it successful. We will also focus on the individuals who made ICPDR a reality and Mr. Stalzer's and Mr. Zavadsky's personal connections to the Danube.

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Declaration, which was a good attempt before the Iron Curtain fell to get some cooperation on water quality going, and everybody welcomed that and was committed. But when the political arena was opened and we started to prepare the convention, it was a really big discussion about whether it would focus only on the main stem. The main driving force at that time was the existing members of the EU because they realised that if the convention were limited to the main stem, there would be trouble later on".

Mr. Stalzer touches on some of these potential issues by clarifying that "the primary pressures on the river come from the areas away from the main stem. They come from the agriculture and industrial sectors and from populated centres that would not have fallen under the convention's purview and so we would not have been able to really do much to confront the real source of the Danube's issues". Luckily, a very short time prior, in 1992, the Helsinki Convention set up a solid precedent for what the Danube River Protection Convention would seek to establish. Mr. Stalzer explains: "The Helsinki convention is based on UN legislation and was the first water protection convention that covered large border-crossing river areas. It showed that such an international scope could certainly be achieved".

Remembering the moment that the decision was finally made, Mr. Zavadsky tells that "the German minister, Klaus Töpfer, invited all the other ministers to Munich and was able to get all of them to agree that the Convention needed to be a modern one and one that respected the needs of proper water management. To that end, it was decided that the river basin was the only management unit under which we could cooperate". "We were also lucky that our effort to get this water protection issue in order in our basin ran parallel to the 15 years EU water declaration and accession negotiations", adds Mr. Zavadsky. "We had a blueprint then and to whomever was not willing to accept the principles enshrined in the convention we could say, 'sorry guys, but you already agreed at the UN-pan-European level. You can't be for it on one level and not on the basin-level. You can not be inconsistent".

Ivan Zavadsky

Born on the Slovak banks of the Danube, Ivan Zavadsky came from a family of water managers. A vital part of his home country's EU accession process, and one-time project manager of the foundational Danube Regional Project – a key precursor to the ICPDR – Zavadsky has been our Executive Secretary since 2013.

As for how quickly the convention was ratified and how quickly the ICPDR was able to get to work is another special set of circumstances. Mr. Stalzer relates: "The convention was signed in 1994, and at that time there was a programme running and in this situation, to get a quick start of the activity on the Commission work, Austria invited the Commission to have an Interim Secretariat in Vienna. And due to the fact that the Danube Convention is based on the Helsinki Convention, as a UN convention, it was possible to have the seat of the Danube Protection Commission within this building (UNO-City in Vienna). And in the beginning, this was with the great support of Austria, also financially". Mr. Zavadsky adds that "this was very important that the Permanent Secretariat got its seat in Vienna because we were able to keep the momentum and the high point of awareness going. An Interim Secretariat and an Interim President were put in place so that as the countries were doing their jobs getting the Convention ratified on the national level, there were people here! They were working on progressing everything forward. Before the Convention had been ratified or had the legal right to do anything, this Interim President and Secretariat were coordinating everything with the support of all of the countries. This really helped to speed up the ratification process". "There were at this time regular meetings, twice a year, of the Danube Environment Programme," remembers Mr. Staltzer, "and each Convention country had representatives at these meetings. These representatives to the Programme were at the same time the provisional delegates representing their countries in the Interim Secretatiat. They had back to back sittings and so were also able to already establish what would be the rules of procedure. By the time the Convention was ratified, everything was already up and running!"

Sedimentation boxes and transport drums before shipment

Placing the sedimentation box in the river

TED-GC-MS (Gerste l) at BAM lab

The Story Behind the Silver Boxes

An article by

Ulrike Braun[1] **Paul Eisentraut**[1]
Igor Liska[2] **Nathan Obermaier**[4] **Peter Oswald**[3]
Jaroslav Slobodnik[3] **Mathias Ricking**[4] **Claus Gerhard Bannick**[4]

First Steps Towards Comprehensive Plastics Monitoring in the Danube River

JOINT DANUBE SURVEY 4

With the adoption of the EU Plastics Strategy in 2018, the subject of plastics and their presence in various environmental media has once again become the focus of public attention. The topic is also high on the agenda in the wider, international context. Despite the UN, OECD, WHO, G7, G20 and others dealing with this topic, it should be noted that there are currently no harmonised testing methods for plastics in environmental matrices. An international group of experts is currently endeavouring to address this comprehensively in the standardisation committee ISO TC 61. In the background of all these activities is the need to reduce the input of plastics into the oceans, which represent a final sink for many anthropogenic substances and materials.

Considering the lack of standardised methodologies, it is not surprising that only the Joint Danube Survey 4 (JDS4) in 2019 provided the opportunity to examine the presence of plastics, and more specifically microplastics (MP), in the Danube River in a comprehensive way. The idea of such a survey goes back to Joachim Heidemeier from the German Federal Environment Agency (UBA), who regrettably died far too early and is now unable to look at the first results.

Like most of the investigations carried out within the JDS context, this first plastics screening was a joint effort of many participants. First and foremost, of the JDS national teams who took the samples on site. The handling of the bulky plastics samplers, ensuring a high quality and comparability of the final results was not an easy task. Large quantities of suspended particulate matter (SPM) from the Danube region had to be brought to UBA Berlin under controlled conditions for further sample treatment. This required a great degree of organisation, which was handled by the Environmental Institute (EI) in Kos, Slovakia. The actual detection of plastics was carried out by the German Federal Institute for Material Testing and Research (BAM) in Berlin.

There are basically two possibilities for the examination of plastics, which return either particle numbers and sizes or the total content of plastics. To reply to questions addressing effects and/or ageing status of plastics, it is useful to investigate particle numbers and sizes and characterise their specific properties. In order to get a first impression on the occurrence of plastics and a first assessment of their sources, the determination of their total contents is more suitable. All of these examination analyses are carried out with a rather new analytical method.

In the JDS4-Plastic-Screening, the BAM used the Thermal-Extraction Desorption - Gas Chromatography - Mass Spectrometry (TED-GC-MS) as a fast, integral analytical technique providing information about the total content of MP. In this analysis, the sample is first pyrolysed to 600°C in a nitrogen atmosphere and then an excerpt of the pyrolysis gases is collected on a solid phase adsorber. Afterwards, the decomposition gases are desorbed and measured in a GC-MS system. Characteristic pyrolysis products of each polymer can be used to identify the polymer type and determine the mass contents in the sample. This method is already well established for the analysis of MP in water filtrate samples.

Similar to the analytical methods, there are also many possibilities for sampling. To get a first impression of the occurrence of MP, sedimentation boxes were used which were deployed in the water body for 14 days and retained SPM from the water. The design of the sedimentation box was already presented in Danube Watch 2/19 (Hohenblum, 2019). The model used in the JDS4 corresponds to the model that is applied by the German Environmental Specimen Bank within the national screening programme.

Another important aspect was the sample preparation. The trapped suspended matter (SPM) from the sedimentation boxes was brought to Berlin as total samples and had to be prepared for further investigations. This included filtration through sieves on which the solid particles, including plastics, were retained and subsequently dried. For some samples, it was foreseeable that a density separation would have to be carried out.

The sampling along the Danube River was carried out from June until October 2019 in nine Danube riparian states - Germany, Austria, the Czech Republic, Slovakia, Hungary, Serbia, Bulgaria, Romania and Ukraine. We would like to take this opportunity to thank the JDS4 National Coordinators and experts responsible for MP screening in all these countries. Without their commitment and financial contribution, MP sampling within the JDS4 would not have been possible.

A model of mixed financing was used for funding the MP Screening within the JDS4. The transport of the samples was handled by the ICPDR, while UBA and BAM contributed to the preparation and overall coordination of the survey and analyses. A considerable amount of the costs was covered by the German Ministry of Research and Education. One of the immediate results of the JDS4 MP screening is that this project serves to bring together a group of key research institutes from the Danube Region that are currently applying for a major EU-funded Horizon 2020 project. The call targets, among others, MP sources, pathways and sinks in different geographical regions and the preliminary investigations carried out in the JDS4 became a part of the proposal. If successful, this new research project will focus on land-based plastics inputs into the environment, their transport mechanisms and their contribution to marine pollution. In this respect, the Danube and Black Sea ecosystem is ideally suited for investigating these issues. A consortium led by the UBA is currently finalising the proposal. However, the decision of the European Commission remains to be seen.

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Improving the Safety of Tailings Management Facilities in the Danube River Basin

Oleksandra Lohunova & Adam Kovacs (ICPDR Permanent Secretariat)

Discussion on the results

Mining is one of the most traditional industrial sectors in the world, providing valuable ores and minerals for further processing; it also represents a significant waste stream that is generated by mining operations. One of the components of mining waste is mining tailings that include overburden, waste rock and mine water and are stored and handled in tailings management facilities (TMFs). Due to the physical characteristics and chemical nature of substances that can be found in the tailings, TMFs pose risks to the environment and population. Pollution of water bodies and the related risk or damage to environmental resources often has a negative transboundary effect. Moreover, accidents at TMFs may lead to long-term water and soil pollution and have negative chronic effects on human health.

The surface water bodies of the Danube River Basin (DRB) were severely damaged by several major accident events in the last two decades. The disasters in Baia Mare (2000) and Ajka (2010) dramatically demonstrated what catastrophic consequences the inappropriate operation of industrial and mining TMFs can have on the aquatic environment, population and socio-economic goods. There are a substantial number of TMFs in the basin where adequate safety conditions should be ensured. The Danube countries, under the umbrella of the ICPDR, decided to jointly address these challenges.

Since March 2019, the ICPDR, in cooperation with the Babes-Bolyai University and the non-governmental organisation "Sustainable Development Platform", has been implementing the project "Capacity development to improve safety conditions of tailings management facilities in the Danube River Basin – Phase I: North-Eastern Danube countries". The project is funded by the Advisory Assistance Programme of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and supervised by the German Environment Agency. The project aims at narrowing knowledge gaps while raising awareness of TMFs and their hazards in the DRB, ensuring a common set of minimum standards and safety requirements in the DRB is respected while strengthening the technical and management capacity at the concerned facilities and among responsible authorities.

The project is accomplishing the following main activities:

- Organising a demonstration regional training event in Romania to deepen the knowledge of invited TMF operators, environmental inspectors and competent authority experts on TMF management.
- Providing recommendations for developing follow-up national training programmes through applying the "train the trainer approach".
- Improving, completing and promoting a previously developed detailed checklist method based on UNECE "Safety Guidelines and Good Practices for TMFs" to evaluate TMF safety and to recommend measures to improve safety conditions.
- Integrating land use planning aspects into an existing TMF hazard assessment method towards a risk assessment method, taking into account potentially affected populations and water bodies.

Within the project, a regional demonstration training event was organised on 1st-3rd of October, 2019 in Cluj, Romania for invited national TMF operators and environmental inspectors. The train-

Site visit and visual inspection at the TMF

International workshop on the 28th-29th

The outcomes of the project will be demonstrated and discussed at a broader international level at an international workshop to be held on the 28th-29th of April, 2020 in Vienna, Austria. International specialists from the Danube countries, other river basin organisations and the UNECE region will be invited to the workshop. The workshop will further promote project outputs and will demonstrate the project as a good example on transnational cooperation on capacity building for other regions and river basins.

Expert discussion at the TMF

ing event included theoretical lectures, field exercises at the Baia Mare TMF and desk exercises to introduce, test and amend a detailed checklist methodology. The checklist was developed earlier in a Ukrainian pilot project and it provides a tool to assess the safety conditions of TMFs and to determine what measures should be applied to mitigate accident risk. In total, 24 trainees from Romania, Hungary, Ukraine, the Czech Republic and Serbia (as observer) and 16 trainers, international experts and project partners participated in the training event.

On the first day, a comprehensive programme of lectures was provided to familiarise the participants with the checklist methodology. In addition, a site visit was organised to Baia Mare on the second day to test a specific checklist designed for visual inspection. During the site visit, participants were divided into three groups and each group performed a separate inspection on the facility. The trainees had their own checklist and answered the questions independently. Each group was accompanied by two trainers and a local TMF operator who provided explanations of the questions. Finally, a practical evaluation exercise on the third day completed the training programme. The participants evaluated the overall and categorical safety conditions of the TMF, compared the results of the visual inspections, exchanged their impressions on the site visit and provided recommendations on how to improve the checklist methodology. All the results, training materials and conclusions were placed on the website (www.sendaiplatform.org) which was developed by the project as a platform for knowledge sharing.

Building on the intensive discussions and constructive outcomes of the training event, the project will further revise and improve the entire checklist methodology in order to make it more adaptable for the DRB and to provide a practical tool for operators and inspectors. Moreover, the training event has significantly contributed to the implementation of the “train the trainer approach” set out in the UNECE “Safety Guidelines and Good Practices for TMFs” by educating a number of trainees that will be able to train additional operators and inspectors in their respective countries after the finalisation of the project. The project will provide recommendations for the Danube countries on developing follow-up national training programmes in order to further capitalise on the project's outcomes.

The project has elaborated a draft method for TMF risk assessment, building on and extending an existing hazard assessment methodology. This extension is considered to be a key output of the project towards a more comprehensive and adequate assessment tool for TMF risk. Recognising that the existing method does not include any land use planning related aspects or risk assessment parameters, the project will deliver substantial improvement by taking into consideration the risks to human health, the environment and socio-economic goods in relation to TMF accidents. The project made a commitment to integrate these aspects into the hazard assessment by developing the Tailings Risk Index.

A second phase of the capacity building activity is also planned for 2020-2021 for the Sava region with a regional training event in Serbia.

GROUNDWATER AND AGRICULTURE INTERRELATION

Groundwater is recognised worldwide as an important resource for water supply and it has been used extensively for irrigation in many regions. Groundwater also plays a vital role during dry periods when it is often a major contributor to river flows.

One of the reasons for using groundwater as a water supply is its self-purification ability. This self-purification process leads to an improvement, or at least stabilisation, of the water quality. However, it is important to note that not all aquifers have the same potential for self-purification. Therefore, depending on the type of aquifer and hydrogeological conditions, vulnerability to pollution varies. The most favourable self-purification conditions have aquifers which are formed in an intergranular medium (e.g. in sands, gravels). On the other hand, karst aquifers, characterised by rapid water flow, are extremely vulnerable to pollution and have the weakest self-purification abilities.

Nowadays it is clear that one of the main pollutants of aquifers is agriculture. Extensive use of pesticides and, what is more important, nutrients, is the main reason why groundwater fails to achieve a good chemical quality. The major sources of nitrates pollution, besides agricultural activities, are non-sewered populations and urban land use. Groundwater flow is one of the most relevant diffuse pathways for nutrients, which consequently contributes to emissions into rivers, carrying nutrients from agriculture and other sources.

Considering more frequent and prolonged dry periods followed by the expansion of the water usage, one of the pressures on groundwater is intensified exploitation of groundwater for agriculture and other purposes. This might lead to over-exploitation and depletion of static aquifer reserves. Depending on the type of aquifer, this also might consequently provoke the deterioration of the quality by changing the flow conditions and thus pull the pollution into the newly established groundwater regime.

According to the ICPDR, groundwater used to supply drinking water plays a major role in Danube countries. It is estimated that more than 70% of the population in the DRB depends on groundwater sources. Hence, it is of the utmost importance to define protection zones for specific aquifers, which should be followed by a set of best agricultural practices with the aim to reduce nutrient input and losses related to farming and land management. Prevention measures against over-abstraction is important in assuring secure water management. Water use, in general, must be appropriately balanced, taking into account the conceptual models which should be developed for each particular case.

Jelena Krstajic

is a PhD student of hydrogeology. A former ICPDR intern, she presents her expertise in groundwater. To hear more about ICPDR intern alumni, and their post internship careers and experiences at the ICPDR be sure to take look at our next Danube Watch edition!

Celebrate 25 Years of ICPDR with a Home-made Cake!

At our 22nd Ordinary Meeting in Vienna, attendees celebrated the 25th birthday of the ICPDR by enjoying some cake! Inspired by this, and not wanting to leave anyone out, we here at Danube Watch decided to kill two birds with one stone: First, provide a tasty recipe for our readers so that they can make their own cake at home to celebrate the ICPDR's birthday, and highlight some of the region's many agricultural products with the choice of cake.

The result is an apple walnut spice cake with a cream cheese frosting. Regional dairy products are reflected by the butter and cream cheese, and the eggs, flour, apples and walnuts are representative of other foodstuffs produced in the DRB. Even the sugar the recipe calls for could come from the Danube region (if it came from local sugar beets). Look at the origins of each of these ingredients and do your best to find those from the Danube River Basin countries, and enjoy! Makes 16-20 servings.

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Ingredients:

For the Cake:

- **335g** of sugar
- **2** large eggs
- **125ml** of melted butter at roomtemperature
- **2** teaspoons of vanilla extract (or 2 teaspoons of vanilla sugar + 2 teaspoons milk)
- **240g** of flour
- **2** teaspoons of baking soda (bicarb)
- **1 ½** teaspoons of cinnamon
- **1** teaspoon of salt
- **½** teaspoon ground nutmeg
- **500g** of chopped apples
- **117g** of walnuts

For the Frosting:

- **120g** of softened cream cheese
- **42g** of softened butter
- **1** teaspoon of vanilla extract (or 1 teaspoon vanilla sugar dissolved in 1 teaspoon milk)
- **150g** of confectioner's sugar

Instructions:

- In a large bowl, beat sugar and eggs. Add butter and vanilla; mix well. Combine the flour, baking soda, cinnamon, salt and nutmeg; gradually add to sugar mixture, mixing well. Stir in apples and walnuts. Pour into a greased and floured 33x23-cm baking pan. Bake at 180° until a toothpick comes out clean, 50-55 minutes. Cool on a wire rack.
- For frosting, beat cream cheese, butter and vanilla in a bowl. Gradually add confectioners' sugar until the frosting has reached desired spreading consistency. Frost cooled cake.

Nutritional Facts:

- 1 piece: 283 calories, 13g fat (3g saturated fat), 31mg cholesterol, 281mg sodium, 40g carbohydrate (28g sugars, 1g fibre), 4g protein.

Make sure to share photos of your own home-baked ICPDR 25th birthday cake with us on our ICPDR Instagram channel **@ICPDR_ORG**

Fold out
This map provides an overview of the differing land cover types in the DRBD. Areas suitable for agricultural purposes are for instance especially located north of the Alps, the middle Danube in the area of the Great Hungarian Plain, as well as the lower Danube region in Bulgaria, Romania, Moldova and parts of Ukraine. Arable land and permanent crops are important land use categories with both together covering an area of over 50% of the basin territory.

Land Cover

LEGEND

*Corine Land Cover (CLC) classes **

- *Artificial surfaces*
- *Arable lands and permanent crops*
- *Pastures and heterogeneous agricultural areas*
- *Forest and transitional woodland shrub*
- *Scrub and open spaces with little or no vegetation*
- *Wetlands*
- *Water bodies*

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

Cities:

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

0 50 100 200 km

Scale: 1 : 4,500,000

N W E S

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

* *This map shows the Corine Land cover data (CLC2006) for all of the ICPDR countries except for Ukraine and Moldova, which are covered by the Global Land Cover 2000 (GLC200*

This ICPDR product is based on national information provided by the Contracting Parties to the ICPDR (AT, BA, BG, CZ, DE, HR, HU, MD, RO, RS, SI, SK, UA) and CH. EuroGlobalMap data fro 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 Commissi

Vienna, October 2014

00) data set. Both land cover datasets were obtained from the European Environment Agency (EEA). www.icpdr.org

m EuroGeographics was used for all national borders except for AL, BA, ME where the data from the on (Joint Research Center) was used for the outer border of the DRBD of AL, IT, ME and PL.

icpdr iksd
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Internationale Kommission zum Schutz der Donau

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