



# **Biodiversity cross-cutting issues through Priority Areas of the European Strategy for the Danube Region**

## **Policy report**



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# 1 EXECUTIVE SUMMARY

The “**Policy Report** on Biodiversity cross-cutting issues through Priority Areas of the European Strategy for the Danube Region” is a part of the Workpackage 1 of the project Priority Area 6: Biodiversity and landscapes, quality of air and soils (DTP-PAC2-PA06). The project is financed from the European Regional Development Fund under the Interreg Danube Transnational Programme (INTERREG V-B Danube 2014-2022).

The aims of the Policy Report are:

- to examine importance of an integrated and inclusive approach in implementing objectives of the EU Strategy for the Danube Region (EUSDR) across all priority areas, with focus on green objectives, primary biodiversity
- to show developments on green elements from EUSDR Action Plan 2010 to the new Action plan (2020)
- to show contribution of EUSDR Action plan for PA 6 to European Green Plan, primarily the EU Biodiversity Strategy for 2030
- to examine contribution of pillar 2 “Environment” of EUSDR Action plan to horizontal policies as defined in Action Plan (climate change and sustainable development)
- to identify possibilities for synergies and cooperation across EUSDR PAs with PA 6
- to contribute to the better understanding of the current state,
- to identify key areas of cooperation,
- to identify good practices related to preservation of biodiversity, landscape, soil and air quality and
- to prepare recommendations for the contribution of PA 6 activities to the elements of the European Green Plan, primarily the EU Biodiversity Strategy for 2030.

Rapid economic development in the Danube region, anthropogenic activities such as negative impact on water bodies, largely due to the use of pesticides and fertilizers in agriculture, as well as soil erosion cause great pressure on biodiversity and negatively affect nature (Baweja, P., Kumar, S., Kumar, G. 2020). Therefore, this Policy report aims to contribute to a better understanding of the current situation, to identify key areas of cooperation for Priority Area 6 (PA 6) and to provide a good overview of positive practices as well as possible positive directions in the context contribution to the objectives of European Green Deal, primarily the EU Biodiversity Strategy for 2030.

The structure of the policy report is as follows:

Chapter 2 **Introduction** provides an overview of the macro-regional strategies and presents pillars and goals of the EUSDR.

Chapter 3 **Methodology** explains how the Report was prepared.

Chapter 4 **Relevant Strategic Documents** outlines current European Union (EU) strategic documents providing context and framework relevant for the PA 6. These include: EU Green Deal, primarily EU Biodiversity Strategy for 2030, but also other relevant strategic documents such as “Farm to Fork” Strategy, Zero Pollution Action Plan, EU Soil Strategy for 2030 and New EU Forest Strategy for 2030.

Chapter 5 **EU Strategy for the Danube Region**, compares the EUSDR implementing documents – 2010 and 2020 Action plans. There are significant differences in the approach taken between Action plan from 2010 and the one from 2020, primarily in the structure. The 2010 Action Plan provides more details, while the 2020 Action Plan provides strategic framework. The implementing tools, including detailed activities, actors and milestones for 2020 Action Plan for PA 6 are provided in separate study, clearly showing the direction of PA 6 work for this decade.

Chapter 6 **Relevance of the EUSDR for Biodiversity** examines to which extent the EUSDR and its current Action plan support implementation of the recently adopted EU strategic documents, focusing on the EU Biodiversity Strategy for 2030.

**Areas of cooperation between PA 6 and other PAs** are identified in Chapter 7.

Chapter 8 explains **Contribution of the EUSDR Pillar 2 (Protecting the environment in the Danube Region) and PA 6 (biodiversity and landscapes, quality of air and soils) to horizontal frames** as defined in the Action plan. The Consolidated Input (DSP 2019a, p. 22) further defines "horizontal frames, relevant for all five strategic objectives and to be implemented in the 12 Priority Areas": (1) digitalisation and (2) migration and demographic change. With regard to the European Green Deal, and the ambitions to make the EU climate-neutral until 2050, it is highly important to further include (3) climate change and sustainable development as horizontal topics, too. As the EUSDR structure with 12 Priority Areas remains unchanged, the successful implementation of this horizontal issues calls for a strong collaboration between the relevant PAs.

Chapter 9 shows **Scenario analysis**, including baseline scenario providing basis for further scenario development. Scenario analysis shows that implementation of actions identified within the EU biodiversity strategy, in addition to those already planned within EUSDR Action plan increases coherence between objectives of named documents and leads to improvement of biodiversity indicators.

**Presentation of good practices** (Chapter 10) enables design of future activities and projects, and inspires exchange of knowledge and experience. The good practice examples include projects related to biodiversity objectives implemented within the umbrella of EUSDR PA 6 but also include other biodiversity related projects implemented in Danube region showing that biodiversity is highly recognised in region, and that there is a path to follow.

Conclusions and recommendations presented in the final chapter are based on the current state, scenario analysis and identification of good practices.

Following recommendations are formulated:

- Focus the activities within the Action Plan on most pressing challenges;
- Provide clear priorities while enabling flexibility in actions and activities within the Action Plan;
- Work towards ensuring nature based solution are included under the work of other priority areas;
- Support and promote transferring activities from the EUSDR PA 6 into mainstream national programs, as this will lead to the approval of projects that contribute to the achievement of the objectives of PA 6 and the EUSDR;
- Keep financing from different transnational sources that are adequate for Task force projects and work;



- Promote replication of the biodiversity-related implemented projects for preparation and implementation of new projects;
- Develop common indicators that are committed to knowledge and innovation;
- Improve the visibility of the activities and their results.

## 2 INTRODUCTION

A 'Macro-regional strategy' is an integrated framework to address common challenges faced by a defined geographical area relating to EU member states and third countries located in the same geographical area, which thereby benefit from strengthened cooperation contributing to achievement of economic, social and territorial cohesion. Macro-regional strategies are guided by three basic rules: (i) no new EU funds, (ii) no additional EU structures, and (iii) no new EU legislation.

The idea is to better align existing funds and policies at EU, national and regional levels and to rely on existing bodies for implementation (European Parliament and Council, 2020). As a result, implementation of the macro-regional strategies may be supported by existing EU funds and programmes, such as the European Structural and Investment Funds and LIFE, Horizon 2020/Horizon Europe programmes.

The EU Strategy for the Danube Region (EUSDR) provides an integrated framework for strengthening the cooperation between nations. It is defined by (i) European Union Strategy for Danube Region and (European Commission, 2010d) (ii) an accompanying Action Plan which complements Communication (European Commission, 2010b, European Commission, 2020d).

The Danube Region is a functional area defined by its river basin. The Danube River is the longest river in the EU, including a 2,857 km long route of transport, trade, energy, migration and cultural exchange across borders. Touching ten different countries, it is the world's most international river and a natural field of transnational cooperation.

The EUSDR geographically concerns Germany (Bavaria and Baden-Wuerttemberg), Austria, the Slovak Republic, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova, Ukraine, the Czech Republic, Slovenia, Bosnia and Herzegovina, and Montenegro. Bringing together 115 million people from nine EU member states, three EU candidate countries and two EU neighbour countries, it has an important integrative and cohesive function. The EUSDR identifies the main challenges and opportunities in the region and proposes an Action Plan as an integrated response.

The EUSDR (European Commission, 2010a) and the accompanying Action Plan are based on four Pillars that address the major issues. Distinct fields of action are defined for each of the Pillars through the following Priority Areas (PAs):

### *Pillar 1 – Connecting the Danube Region*

PA 1 – To improve mobility and multimodality

- (a) Inland waterways
- (b) Road, rail, and air links

PA 2 – To encourage more sustainable energy

PA 3 – To promote culture and tourism, people to people contacts

### *Pillar 2 – Protecting the Environment in the Danube Region*

PA 4 – To restore and maintain the quality of waters

PA 5 – To manage environmental risks

PA 6 – To preserve biodiversity, landscapes, and the quality of air and soils

*Pillar 3 – Building Prosperity in the Danube Region*

PA 7 – To develop the knowledge society through research, education, and information technology

PA 8 – To support the competitiveness of enterprises, including cluster development

PA 9 – To invest in people and skills

*Pillar 4 – Strengthening the Danube Region*

PA 10 – To step up institutional capacity and cooperation

PA 11 – To work together to promote security and tackle organised and serious crime.

This policy report focuses on biodiversity within the EUSDR, Pillar 2, and particularly PA 6. The value and diversity of the environmental resources, habitats and species of the Danube Region is recognised within the strategy. Cooperation beyond natural borders is stated as necessary to preserve these in the context of growing pressures on the environment due to human activity.

The objectives of this report are to:

- Examine importance of the integrated and inclusive approach to the EUSDR implementing for all priority areas
- Look into the approach of other EUSDR priority areas towards protection of biodiversity
- Contribute to the better understanding of the current state
- Identify key areas of cooperation
- Identify good practices related to preservation of biodiversity, land, landscape and air quality
- Prepare recommendations for the coherence of the implementation of the EUSDR and European Green Deal.

To achieve these objectives, this report provides the overview of the relevant strategic documents related to biodiversity and analysis of the importance of an integrated and inclusive approach in implementing objectives of the European Strategy for the Danube Region across all priority areas, as well as the approach of each priority area to preserving biodiversity and possibilities for their synergies and cooperation with the PA 6. Finally, this report provides recommendations for the coherence of the EUSDR implementation.



### 3 METHODOLOGY

In the preparation phase of this report, first step was to investigate the inclusion of biodiversity into the main strategic documents of the European Union. Numerous documents have been identified as relevant, including the EU Green Deal, EU Biodiversity Strategy for 2030, “Farm to Fork” Strategy, Zero Pollution Action Plan, New EU Forest Strategy for 2030 and EU Soil Strategy for 2030, and further main objectives related to biodiversity have been analysed.

After the identification of the strategic documents for the biodiversity, the European Union Strategy for the Danube Region was analysed together with the EUSDR 2020 Action Plan. In addition, the EUSDR 2010 Action Plan was analysed in order to identify main reasons for its revision, as well as the differences between this and revised Action Plan.

In further analysis, the focus is on the Pillar 2: Protecting the Environment and the Priority Area 6 – Biodiversity and landscapes, quality of air and soils. Firstly, the contribution of the Pillar 2 objectives to the Strategy objectives was analysed, which was followed by the analysis of the contribution of the PA 6 objectives and actions on the Pillar 2 objectives. After the introduction of PA 6 actions, their compliance with the main strategic documents regarding biodiversity (EU Biodiversity Strategy for 2030 and the EU Green Deal) was analysed. Additionally, other EUSDR PAs have been analysed and some of them have been identified as relevant for the biodiversity. Also, some key areas of cooperation have been identified. The horizontal policies related to climate change and sustainable development have been identified and analysed.

All Operational Programmes for the financial period 2014-2020 relevant to the region have been analysed. Based on the analysis, the good practice examples of projects related to the biodiversity have been identified. Criteria for selecting the project as a good practice example were that they are contributing to preservation and restoration of biodiversity, but also that they involve different stakeholders, introduce innovations and that they involve more countries. Additionally, it was important that the projects are interdisciplinary in terms that they are related to other sectors and/or other PAs.

The report concludes with recommendations that have been developed after an in-depth analysis of the biodiversity in the European Union Strategy for the Danube River and accompanying Action Plan.

## 4 RELEVANT STRATEGIC DOCUMENTS

Current EU environmental policies are centred around the umbrella strategy, the European Green Deal, representing the broad EU strategic approach to the environmental crisis, and recognising that previous strategies may not have been sufficiently ambitious to minimise the detrimental impacts of climate change and the degradation of the environment as a result of human activity. Further strategies, policies, directives, and regulations are being issued to consolidate the implications of the European Green Deal strategy in relation to specific activities, regions or areas of the economy. This policy report focuses on biodiversity as a part of the EU Strategy for the Danube Region (EUSDR), in particular Priority Area 6 of the Strategy. Its mission is to preserve biodiversity, landscapes and the quality of air and soils. This section provides an outline of current EU environmental strategies relevant to these areas. Relevant strategic documents include: the EU Green Deal, Biodiversity Strategy to 2030, “Farm to Fork” Strategy, New EU Forest Strategy for 2030, Zero Pollution Action Plan, and EU Soil Strategy for 2030.

The **EU Green Deal** defines the commitment of the European Union to respond to the environmental and climate change-related challenges faced in Europe in the longer run, with the key overarching aim for the EU to produce no net emissions of greenhouse gases by 2050. This aim is to be facilitated in part by the intermediate target of reducing emissions by at least 50% and towards 55% by 2030. Another aim of the strategy is to decouple economic growth from resource use, so that the EU remains a prosperous society with a competitive economy, while minimising its damage to the environment. Achieving this aim could also contribute to the emission reduction targets (European Commission, 2019).

In relation to the preservation and restoration of ecosystems and biodiversity, the European Green Deal recognises that changes in land and sea use, exploitation of natural resources, and climate change are significant factors in the global loss of biodiversity. **The EU Biodiversity Strategy for 2030** aims to address some of these factors, and present a more ambitious EU approach to preserving nature and natural biodiversity. The five main drivers of biodiversity loss identified in the Biodiversity Strategy are: changes in land and sea use, overexploitation of natural resources, climate change, pollution, and invasive alien species. Protecting and restoring biodiversity has benefits for the agricultural and food production sectors, and potential economic benefits for businesses, as well as allowing humans to be more resilient to changes in the environment (European Commission, 2020b).

The “**Farm to Fork**” strategy is one of the elements of the European Green Deal. It is intended to enable the formulation of a more sustainable food policy covering all stages of the food production and supply chain. The strategy includes a social aspect, through its aim to secure access to sufficient, nutritious, and affordable food, as well as an environmental aspect, through its aim to ensure that the food production and supply chain has a neutral or positive environmental impact. Specifically, the environmental aims are “that the freshwater and sea-based resources on which the food system depends are preserved and restored, that land, soil, water, air, plant and animal health and welfare are protected, and that biodiversity loss is reversed” (European Commission, 2020c). The EU’s goals are to reduce the environmental and climate footprint of the EU food system and strengthen its resilience, ensure food security in the face of climate change and biodiversity loss and lead a global transition towards competitive sustainability from farm to fork and tapping into new opportunities.

The **Zero Pollution Action Plan** highlights the problems linked to pollution, including various health problems, significant contribution to premature mortality rates, threats to biodiversity, and contribution to the mass-extinction of species (European Commission, 2021a). The long-term ambition of the action plan is that, by 2050, air, water, and soil pollution is reduced to levels no longer considered harmful to health and natural ecosystems.

The **EU Soil Strategy for 2030** (European Commission, 2021b) replaces the 2006 Soil Thematic Strategy and represents a key deliverable of the Biodiversity Strategy for 2030. In addition, it contributes to several medium- and long-term objectives established as part of, among others, the Green Deal, Biodiversity Strategy for 2030, Climate Adaptation Strategy, Water Framework Directive, Roadmap to a Resource Efficient Europe, and the Farm to Fork Strategy.

The **New EU Forest Strategy for 2030** (European Commission, 2021c) covers the whole forest cycle and promotes the many services forests provide. The Strategy aims at ensuring healthy and resilient forests that contribute significantly to biodiversity and climate goals, secure livelihoods and support a circular bioeconomy. It will focus namely on EU forest protection, restoration and sustainable management, and on world forests where not covered by ongoing work. The forest strategy recognises the need to strengthen the protection and restoration of forests and the need for more biodiversity-friendly sustainable forest management to ensure their resilience and productive capacity for decades to come. The strategy also emphasises the need to set up schemes to reward forest owners for ecosystem services other than timber production - like water retention, climate regulation, and recreational services - and for adopting climate- and biodiversity-friendly forest management practices.

In order to reach the objectives of the European Green Deal, it is necessary that investments are oriented towards sustainable projects and activities. The Taxonomy regulation sets four overarching conditions that an economic activity has to meet in order to qualify as environmentally sustainable:

- It makes a substantial contribution to at least one of the six environmental objectives.
- It does not significantly harm (DNSH) any environmental objective.
- It complies with minimum social safeguards.
- It complies with the technical screening criteria.

The six environmental objectives are :

- Climate change mitigation
- Climate change adaptation
- The sustainable use and protection of water and marine resources
- The transition to a circular economy
- Pollution prevention and control
- The protection and restoration of biodiversity and ecosystems.

Activities under the Recovery and Resilience Facility, the Next Generation EU, InvestEU have to comply with do not significant harm principle.

Generic criteria for DNSH to protection and restoration of biodiversity and ecosystems are:

- “An Environmental Impact Assessment (EIA) or screening has been completed in accordance with Directive 2011/92/EU15.
- Where an EIA has been carried out, the required mitigation and compensation measures for protecting the environment are implemented.

For sites/operations located in or near biodiversity-sensitive areas (including the Natura 2000 network of protected areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas), an appropriate assessment, where applicable, has been conducted and based on its conclusions the necessary mitigation measures are implemented. Thus, as a minimum, all activities if not substantially contributing should not significantly harm biodiversity.” (European Commission 2021e, Annex 1, Appendix D). These criteria are used in Chapter 8 as relevant for horizontal activities.

Key requirements of the relevant strategic documents regarding biodiversity have been listed in Table 1.

**Table 1. Key requirements of the relevant strategic documents regarding biodiversity**

Strategy	Key requirements
European Green Deal	<ul style="list-style-type: none"> <li>• Decoupling economic growth from resource use</li> <li>• Net zero emissions by 2050, with at least a 50% reduction in emissions by 2030</li> <li>• Just and inclusive transition to green and sustainable practices</li> <li>• International collaboration for meaningful change</li> </ul>
EU Biodiversity Strategy for 2030	<ul style="list-style-type: none"> <li>• Nature protection, including quantitative targets</li> <li>• Nature restoration, including quantitative targets and further measures and regulations</li> <li>• Measures to enable change, such as promoting innovation and education</li> <li>• Addressing the biodiversity crisis at a global level</li> </ul>
'Farm to Fork' Strategy	<ul style="list-style-type: none"> <li>• Addressing excessive use of, particularly non-biological pesticides and fertilisers</li> <li>• Revision of animal and plant welfare and diversity</li> <li>• Increasing the adoption of organic farming methods</li> <li>• Reducing food waste in order to increase the sustainability and efficiency of the supply chain</li> <li>• Development of strategic plans by EU Member States under the Common Agricultural Policy (CAP)</li> </ul>
Zero Pollution Action Plan	<ul style="list-style-type: none"> <li>• Reducing the premature deaths from air pollution by more than 55%</li> <li>• Reducing the share of people chronically disturbed by transport noise by 30%</li> <li>• Reducing the EU ecosystems where air pollution threatens biodiversity by 25%</li> <li>• Reducing nutrient losses, the use and risk of particularly the most hazardous chemical pesticides, and the sale of</li> </ul>



	<p>antimicrobials for farmed animals and in aquaculture by 50%</p> <ul style="list-style-type: none"> <li>• Reducing plastic litter at sea by 50% and microplastics released into the environment by 30%</li> <li>• Significantly reducing total waste generation, and reducing residual municipal waste by 50%</li> </ul>
<p>EU Soil Strategy for 2030</p>	<ul style="list-style-type: none"> <li>• By 2050 all EU soil ecosystems are healthy and more resilient and continue to provide their crucial services</li> <li>• By 2050 there is no net land take and soil pollution is reduced to levels that are not harmful to people's health or ecosystems</li> <li>• By 2050 common standard is protecting soils, managing them sustainably and restoring degraded soils. By 2023, member states develop key national targets</li> <li>• Defines requirements for Member States in the period until 2023</li> </ul>
<p>New EU Forest strategy for 2030</p>	<p>Protecting, restoring and enlarging EU's forests to combat climate change, reverse biodiversity loss and ensure resilient and multifunctional forest ecosystems</p> <ul style="list-style-type: none"> <li>• Protecting EU's last remaining primary and old-growth forests</li> <li>• Re- and afforestation of biodiverse forests</li> </ul>
<p>Taxonomy regulation</p>	<p>Defining overarching conditions that economic activity has to meet in order to qualify as environmentally sustainable:</p> <ul style="list-style-type: none"> <li>• It makes a substantial contribution to at least one of the six environmental objectives,</li> <li>• It does not significantly harm any environmental objective,</li> <li>• It complies with minimum social safeguards,</li> <li>• It complies with the technical screening criteria.</li> </ul>

Source: authors

## 5 EUROPEAN UNION STRATEGY FOR THE DANUBE REGION

### 5.1 EUSDR 2010 ACTION PLAN

In the 2010 Action Plan, actions are organised by the Pillars and Priority Areas (PAs) of the EUSDR, such that each PA is associated with a set of actions. However, the interdependence of issues across the PAs is recognised, and highlighted as an important consideration for effective implementation of the actions and the mission of the Action Plan.

The EUSDR and its 2010 Action Plan were introduced in the context of the Europe 2020 Strategy, published in March 2010 to define the EU's strategy to 2020. The Action Plan therefore highlights the contribution of the Pillars and Priority Areas to the smart, sustainable, and inclusive growth at the centre of the strategy (European Commission, 2010a; European Commission, 2010c).

Pillar 2 of the EUSDR focuses on protecting the environment in the Danube Region. Within this, the PA 6 focuses on biodiversity and restoring and maintaining the quality of air and soils. It is therefore pertinent to define the policy context for the Action Plan in relation to environmental policies. Environmental strategies and policies active in 2010 include aims for sustainable growth from the Europe 2020 strategy, the 7<sup>th</sup> Environmental Action Plan (EAP). In addition, the actions must comply with policy principles of the EU<sup>1</sup>, including the precautionary principle, pollution prevention, rectifying pollution at source, and 'polluter pays' (see Annex of Inception Report for details). While application of the precautionary principle can be ambiguous, the principles for preventing and dealing with pollution constitute key compliance requirements with relevance to the PA 6 of the EUSDR in 2010.

The actions listed in the 2010 Action Plan (European Commission, 2010a) are outlined below. These are organised by the following targets (focus areas) of the PA 6: preservation of biodiversity and landscapes, preservation and improvement of the quality of soils, improvement of air quality, and education of people on the value of natural assets, ecosystems and the services they provide.

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<sup>1</sup> Directive 2004/35/CE (on environmental liability with regard to the prevention and remedying of environmental damage): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004L0035&from=EN>

Directive 2010/75/EU (on industrial emissions (integrated pollution prevention and control)): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0075&from=EN>



**Table 2. A summary of the actions listed for the PA 6 in the 2010 Action Plan of the EUSDR. All information collated from the 2010 Action Plan**

Action	Description
<i>Preservation of biodiversity and landscapes</i>	
<p>To contribute to the 2050 EU vision and 2020 EU target for biodiversity</p>	<p>This action commits the EUSDR to contribute to the post-2010 EU biodiversity target set out ahead of the Biodiversity Strategy to 2020.</p>
<p>To manage Natura 2000 sites and other protected areas effectively</p>	<p>Protected areas, such as Natura 2000 sites, should be managed to a defined framework including transnational cooperation, to ensure effectiveness across all areas including outreach and tourism.</p>
<p>To protect and restore most valuable ecosystems and endangered animal species</p>	<p>Protection of the remaining natural ecosystems, such as the Danube Delta or the Carpathians should be enhanced, wetlands restored, non-arable land afforested, marginal forests protected, and highly impacted areas bioremediated. These actions are to be supported by environmental research, including monitoring of species and habitats. This supports protection for endangered species such as sturgeon, wolves, and lynx. Illegal trade of wild animals should also be addressed as part of this action.</p>
<p>To explore together the appropriateness of reviewing the Convention Concerning Fishing in the Waters of the Danube</p>	<p>The parties of the Convention on fishing in the waters of the Danube River should examine the inclusion of recent geopolitical changes, and policy developments related to the environment and sustainable fishing in the Convention, because this has not been reviewed since it was signed in 1958.</p>
<p>To develop green infrastructure in order to connect different biogeographic regions and habitats</p>	<p>Interconnection of habitats (including Natura 2000 sites) enhances their ecological value and their ability to provide ecosystem services. This action could include scientific research, and consultation for different methods of connecting ecosystems. These should be integrated into spatial and infrastructure planning in general.</p>

To reduce the spread of invasive alien species

This action includes assessment of the impact of invasive alien species on the ecosystems in the Danube Region, and identification of, and/or research into ecologically sound ways of controlling their spreading and population growth, including their eradication. Raising public awareness on invasive alien species is also part of this action.

To decrease the input of pesticides into the environment of the Danube Region

This action aims to reduce the contamination of the Danube Region with pesticides. Nationally, countries in the region should effectively apply the Pesticide Framework Directive<sup>2</sup>, focusing on the development of programmes and concepts for the reduction of pesticides, specifically in hotspot areas.

To remove safely obsolete pesticides and other obsolete chemicals in the area of the Danube Region

A key part of this action is implementing the World Health Organisation's Resolution on Improvement of health through sound management of obsolete pesticides and other obsolete chemicals<sup>3</sup>.

To prepare and implement transnational spatial planning and development policies for functional geographical areas (river basins, mountain ranges, etc.)

The aim is to develop coordinated spatial planning policies focusing on the protection and sustainable development of functional geographical areas.

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*Preservation and improvement of the quality of soils*

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To ensure appropriate treatment of solid waste

This action includes establishment of waste management systems, development of waste management centres, rehabilitation and closure of non-compliant landfills, highly polluted sites, and

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<sup>2</sup> Pesticide Framework Directive: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0128&from=EN>

<sup>3</sup> WHO Resolution: [https://www.who.int/ipcs/publications/wha/pesticides\\_resolution.pdf](https://www.who.int/ipcs/publications/wha/pesticides_resolution.pdf)



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wild dumps, and raising awareness of reducing and recycling waste.

To create standardised and compatible information on land cover on transnational basis

The focus is on the possibilities for collecting harmonised land cover information across the region, to improve on the limited information available for the Danube Region through the Global Monitoring for Environment and Security (GMES)<sup>4</sup> framework.

To raise awareness about soil protection

This action could be achieved in cooperation with the European Land and Soil Alliance (ELSA), and through the initiation of further partnerships.

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*Improvement of air quality*

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To decrease air pollutants

This action should concentrate on data collection, air pollution reduction measures, and reporting on the level of air pollutants in the region as per the Convention on long-range transboundary air pollution<sup>5</sup>.

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*Education of people on the value of natural assets, ecosystems and the services they provide*

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To raise awareness of the general public, by acknowledging and promoting the potentials of natural assets as drivers of sustainable regional development

Aspects of this action include promotion of green, soft, and eco-tourism, as well as increasing the perception of preserved nature as a valuable asset.

To educate children and young people

There is a particular need to educate the younger generation, as the pressure on biodiversity and natural resources is growing. Education should

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<sup>4</sup> Global Monitoring for Environment and Security (GMES):  
[https://ec.europa.eu/commission/presscorner/detail/en/MEMO\\_05\\_420](https://ec.europa.eu/commission/presscorner/detail/en/MEMO_05_420)

<sup>5</sup> Long-term strategy for the Convention:  
[https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/correct\\_numbering\\_Decision\\_2018\\_5.pdf](https://unece.org/fileadmin/DAM/env/documents/2018/Air/EB/correct_numbering_Decision_2018_5.pdf)

include the services provided by ecosystems, the value of natural assets, and the benefits of biodiversity, and could be introduced into the educational curricula of countries in the Danube Region.

To build capacities of local authorities in environment-related matters

While local authorities are primarily responsible for the implementation of environmental matters such as waste, or the management of protected areas, they often lack the knowledge and capacities to develop projects in these areas. This action seeks to provide local authorities with training, an expert group supporting areas with the resolution of problems, and networks for the exchange of good practices.

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Source: *European Commission (2010a)*

The achievements of the 2010 Action Plan and its implementation can be summarised from the Consolidated Input Document (DSP, 2019) as follows:

- The EUSDR is delivering results through the rich set of initiatives introduced under the strategy.
- The setup of the Interreg Danube Transnational Programme matches the geographical area of the Danube Strategy, providing support to its governance, and contributing directly to its implementation.
- The EUSDR website presents and informs on the activities and results of the strategy.
- The Annual Forum facilitates assessment of the implementation of the strategy, and discussion of the way ahead. The political momentum of the strategy is maintained through Ministerial Meetings organised to coincide with the Annual Forum.
- The EuroAccess Danube Region online platform provides access to information on EU funding, supporting the sourcing of funding for specific projects.
- The macro-economic performance relations between most parts of the Danube Region are fairly strong, and the macro-regional integration of trade, investment, and energy is found to be high.
- The PAs set out in the Action Plan are confirmed to address existing needs of the Danube Region, and are therefore justifiably relevant.
- The EUSDR has succeeded in bringing together different actors such as those from public and private sectors, across different government levels, and from third countries.
- A key achievement of the EUSDR is the increase in policy dialogue and cooperation on major issues, as well as increased cooperation with third countries.
- Almost all PAs report satisfactory progress, but assessment against indicators of progress in target areas show both positive and negative developments.

There is a focus for the revision of maximising the added value of the Action Plan, and strengthening and coordinating revision efforts in order to enable a greater strategic focus. The following areas are therefore identified in the Consolidated Input Document as areas for improvement from the 2010 Action Plan for a more effective framework and implementation of actions after the revision (DSP, 2019).

- Better coordination of funding opportunities and the EUSDR are required, as a gap continues to exist between the strategy and the funding programmes. The integration of the macro-regional perspective in directly-managed EU funds could be improved by enhancing exchange of experience among funding programmes involved with macro-regional strategies and projects

- Improvements to the effectiveness of funding mechanisms could be made by enhancing the potential for aligning existing funding instruments with the priorities of the strategy. For example, by promoting actions in line with EUSDR policies that bring added value to the EU enlargement process in Western Balkan countries. Strengthening the dialogue between funding management authorities and those implementing the EUSDR could also support the achievement of intended results. This is particularly important for the upcoming programme period, 2021-2027, since cooperation is introduced as a horizontal objective for Cohesion Policy.
- While nationally oriented European Structural and Investment Funds (ESIF) programmes have been formally aligned with the strategy, stakeholders report little transnational financing. A revised Action Plan will be the basis to better combine the findings of EUSDR with the (transnational) Interreg Programmes as well as mainstream programmes of the new Cohesion Policy.
- A better balance between the Instrument for Pre-accession Assistance (IPA) fund and the European Regional Development Fund (ERDF) would be beneficial for the next generation of the transnational programme dedicated to the EUSDR.
- Priority area coordinators (PACs) often report insufficient and discontinuous participation of the relevant Directorate Generals and Commission services to activities of the relevant PAs as a critical factor. Ensuring continuous participation is key.
- It is necessary to ensure appropriate participation of national representatives in Steering Group meetings of PAs, and to consider reducing the number and scope of current PAs if sufficient resources cannot be allocated in an appropriate timeframe.
- The overall ownership of the EUSDR enhanced by national and regional administrations through the introduction of a mechanism for regular rotation of PACs. Ensuring a balanced distribution of PA coordination roles is important.
- Administrative support for political measures and initiatives requires improvement, for example in ensuring sufficient resources for day-to-day work in the long term.
- Further improvements could be facilitated through reinforcing and acknowledging the importance of national coordination mechanisms, and strengthening the commitment of sectorial ministries by emphasising the potential benefits of the EUSDR.
- Monitoring results of macro-regional strategies is challenging, since not all can be monitored in a quantitative manner.
- There are large variations throughout the region in terms of competitiveness, with a notable divide between urban areas/capital cities, and rural/peripheral regions. The performance in terms of political, governance, and institutional indicators in the region also shows clear divisions and inequalities across the regions. It is important to address these differences, and to ensure that the revision of the Action Plan reflects the implementing capabilities of participating countries.
- Complementarities should continue to be sought between the EUSDR Action Plan and the instruments and organisations already operating in the region.
- Although broadly satisfactory progress has been reported for all PAs, there have been some negative developments that need to be addressed.

## **5.2 DEVELOPMENT OF THE EUSDR 2020 ACTION PLAN**

The EUSDR is built on four Pillars, under which specific Priority Areas (PAs) are defined. For the implementation of the EUSDR, the Action Plan sets out a specific set of actions for each of the PAs. The Action Plan is intended as a rolling document that is reviewed periodically according to developments in policy, and in the implementation of the established actions.

The Action Plan for the European Union Strategy for the Danube Region (EUSDR) was initially established together with the Strategy in 2010. This was aligned with the EU strategic Agenda 2020 active at the time. The Action Plan was intended to be revised periodically based on new policy developments, and according to the progress made from the previous Action Plan. The 2010 Action

Plan was therefore revised in 2019, to produce the 2020 Action Plan, which aimed to align with the new strategic agenda for the EU for the 2019-2024 period, as well as with new strategies and policies introduced around that time. A key aim of the revision was to better align the EUSDR to EU funding instruments, through alignment particularly with the Cohesion Policy objectives for the period 2021-2027. The 2010 Action Plan was reviewed to incorporate new policy developments, to facilitate more effective use of funding instruments for the EUSDR, and to act on unresolved and emerging challenges in the region. Unresolved or partially resolved challenges include mobility, energy, environmental risks, socio-economy, and security. Emerging and upcoming challenges include digitalisation, climate change, migration, geo-political issues, and the need for better integration and cooperation across different administrative levels and civil society (DSP, 2019). One of the main goals of the revision of the Action Plan, according to the Consolidated Input Document for the revision of the Action Plan (DSP, 2019), is to clarify future-oriented strategic objectives for the region, and to increase the added value of the EUSDR for (Cohesion) Programmes of the 2021-2027 funding period.

The revision of the EUSDR Action Plan brought some changes in the PA 6 targets. The target one has been divided into two targets – one focusing on management of protected areas (T1: Improve management of ecological networks and protected areas through transnational cooperation and capacity building) and the other focusing on efforts to halt the deterioration in the status of endangered species and habitats (T2: Strengthen the efforts to halt the deterioration in the status of species (e.g. Danube sturgeon species) and habitats occurring in the Danube region and covered by the EU nature legislation). The second target, that incorporated three PA 6 topics – landscapes, soil and air has been divided into three separate targets – T4: Maintain and restore Green and Blue Infrastructure elements through integrated spatial development and conservation planning, T5: Improve and/or maintain the soil quality in the Danube Region and T6: Decrease air pollution in the Danube Region. The scope and objectives of the Target 3 (T3: Reduce the introductions and spread of Invasive Alien Species (IAS) in the Danube Region) have remained the same, but it was shortened in order to be in line with other targets, while the Target 4 was already covered by target one so it was combined with the newly proposed Target 2 (T2: Strengthen the efforts to halt the deterioration in the status of species (e.g. Danube sturgeon species) (Ministry of Environment and Energy, 2019).

### **5.3 EUSDR 2020 ACTION PLAN PILLAR 2 AND PRIORITY AREA 6**

The revised Action Plan for the EUSDR refers to the EU Strategic Agenda 2019-2024 (European Council, 2019), which focuses on four priorities: (i) protecting citizens and freedoms; (ii) developing a strong and vibrant economic base; (iii) building a climate neutral, green, fair and social Europe; and (iv) promoting European interests and values on a global stage. Strategic objectives of the EUSDR Action Plan align to the mentioned priorities whenever the EUSDR can contribute. Additionally, strategic objectives of the Strategy are based on the policy objectives of the proposed Regulations for European Regional Development Fund (ERDF), European Social Fund (ESF), Cohesion Fund (CF), Just Transition Mechanism (JTM), Instrument for Pre-Accession Assistance (IPA) and Neighbourhood, Development and International Cooperation Instrument (NDICI) post-2020.

Five strategic objectives of the EUSDR are:

1. Counteracting climate change

2. Stimulating sustainable development
3. Establishing and enforcing knowledge society, stimulating the economy and fight poverty
4. Improving mobility and connectivity
5. Enhancing democracy, sound administration and strong involvement of civil society and youth (DSP, 2019).

Strategic objectives of the EUSDR are implemented in four pillars and 12 priority areas of the EUSDR. Additionally, each pillar has specific objectives, which match five strategic objectives of the EUSDR. Objectives of the EUSDR Pillar 2 are:

- Establishing a climate influence monitoring
- Reducing environmental risks
- Improving protection against natural hazards
- Improving waste management
- Improving waste water treatment
- Safeguarding drinking water supply
- Reducing water pollution and improve water quality
- Safeguarding biodiversity
- Improving soil quality
- Improving the use of spatial planning for safeguarding open space and sound land use in agglomerations
- Ensuring active involvement of and dialogue with all stakeholders with the general public including awareness raising and education in water management
- Promoting water related measures in urban planning (European Commission, 2020a).

Elements of these objectives are connected to several objectives of other Pillars – Pillar 1 and Pillar 4. The objectives of Pillar 1 that are compliant to the objectives of Pillar 2 are: improving renewable energy production, increasing energy efficiency, reducing CO<sub>2</sub> by decarbonisation of transport and alternative fuels, and increasing sustainable energy sources like biomass, solar energy, geothermal, hydro and wind power. As can be seen, the objectives within Pillar 1 compliant to the objectives of Pillar 2 refer to the use of renewable energy sources and energy efficiency. These objectives impact on the objectives of Pillar 2 due to the fact that renewable energy sources and energy efficiency positively affect climate changes, reduce environmental risks, reduce water pollution and improve water quality, as well as the soil quality. Moreover, the use of renewable energy sources also helps safeguarding biodiversity.

Objectives of the Pillar 4 compliant to the objectives of Pillar 2 are: improving the use of spatial planning for safeguarding open space and sound land use in agglomerations, which is the same objective in both Pillars; increasing the integration of civil society through involvement and participation, and strengthening the involvement of younger generation into political processes. Increasing the integration of civil society through involvement and participation and strengthening the involvement of younger generation into political processes impact the objective “Ensure active involvement of and dialogue with all stakeholders with the general public including awareness raising and education in water management” since they are encouraging involvement of civil society, and younger generations in particular, in the processes regarding the environment protection.

Since this policy report focuses on biodiversity, the PA 6 is the most relevant. Priority area 6 – Biodiversity and landscapes, quality of air and soils objectives are:

- Improve management of Natura 2000 sites and other protected areas through transnational cooperation and capacity building
- Strengthen the efforts to halt the deterioration in the status of species and habitats occurring in the Danube Region and covered by EU nature legislation and in particular to continue the ongoing work and efforts to securing viable populations of Danube sturgeon species
- Reduce the introductions and spread of invasive alien species (IAS) in the Danube Region
- Maintain and restore green and blue infrastructure elements through integrated spatial development and conservation planning
- To improve and/or maintain the soil quality in the Danube Region
- To decrease air pollution in the Danube Region

First PA 6 objective, 'Improve management of Natura 2000 sites and other protected areas through transnational cooperation and capacity building' impacts on several objectives of Pillar 2. Improving the management of Natura 2000 sites as well as the other protected areas affects safeguarding biodiversity. Additionally, it also impacts the improvement of the use of spatial planning for safeguarding open space. Finally, transnational cooperation and capacity building in management of protected spaces ensures active involvement and dialogue with all stakeholders.

'Strengthen the efforts to halt the deterioration in the status of species and habitats occurring in the Danube Region and covered by EU nature legislation and in particular to continue the ongoing work and efforts to securing viable populations of Danube sturgeon species' impacts the Pillar 2 objective safeguarding biodiversity, as well as the PA 6 objective 'Reduce the introductions and spread of Invasive Alien Species (IAS) in the Danube Region'.

'Maintain and restore Green and Blue Infrastructure elements through integrated spatial development and conservation planning' is the PA 6 objective that impacts the Pillar 2 objective improving the use of spatial planning for safeguarding open space and sound land use in agglomerations since the Green and Blue infrastructure is the concept of integrating environmental features such as ecological connectivity into spatial planning.

The PA 6 objective to improve and/or maintain the soil quality in the Danube Region impacts the Pillar 2 objective improving soil quality, while the PA 6 objective to decrease air pollution in the Danube Region impacts Pillar 2 objectives related to climate change as well as the improvement of waste management. Air pollution is the only PA 6 objective that is not directly mentioned among Pillar 2 objectives, even though it should be since the air pollution is one of the largest environmental risks. On the other hand, other PA 6 objectives are in line with Pillar 2 objectives, as well as the EUSDR strategic objective 1 – Counteracting Climate Change.

The PA 6 objectives will be achieved by implementation of the actions and activities in the framework of the PA 6. Revised activities and objectives for 2020 Action Plan were elaborated in the study Opportunities and proposals for the revised action plan (Ministry of Environment and Energy, 2019). These are presented in Table 3.

**Table 3. Background information on the activities included in the 2020 Action Plan of the EUSDR**

Action	Description
<i>T1: Improve management of ecological networks and protected areas through transnational cooperation and capacity building</i>	
<p>Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin</p>	<p>Due to different customs and/or legislation, management of Natura 2000 and other protected areas located on transboundary rivers of the Danube basin could present a challenge. Transnational cooperation and harmonisation of the strategic planning documents (e.g. Natura 2000 management plans, management plans of protected areas, Masterplan) will help ensure consistency and sustainability in implementation of conservation measures and, in the end, contribute to better nature protection of these areas.</p>
<p>Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in environment-related matters</p>	<p>Successful nature protection depends on well informed authorities, strong non-governmental organisations and involved expert and scientific community. The EUSDR provides a perfect platform to ensure multiplication and the sustainability of capacity building activities, such as those aiming to strengthen the knowledge transfer between national authorities; scientific community and different stakeholders (e.g. DANUBEPARKs); and managers of protected areas, Natura 2000 and Emerald Network sites.</p>
<i>T2: Strengthen the efforts to halt the deterioration in the status of species (e.g. Danube sturgeon species) and habitats occurring in the Danube region and covered by EU nature legislation</i>	
<p>Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube Region</p>	<p>The umbrella species (or flagship species) have complex demands on their habitats. Therefore, preserving (the dynamics of) their key habitats contributes to the protection of many other species. Additionally, these species are usually attractive and fascinating plants or, more often, animals, which is why they are also well-suited to demonstrating to the public the need to preserve their habitats and raise awareness about anthropogenic impact on ecosystems.</p>
<i>T3: Reduce the introductions and spread of Invasive Alien Species (IAS) in the Danube Region</i>	

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Promote research to develop and apply the most appropriate methods for prevention and control of Invasive Alien Species (IAS) and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014

In order to develop and apply the most appropriate methods for prevention and control of IAS and management of their priority pathways in the Danube Region, further research is needed. List of IAS of particular concern in the Region could help to ensure more targeted use of the EU resources. Early detection and warning system, transboundary action and/or eradication plans and collaboration of all relevant sectors could ensure both pooling the resources and sustainability of applied measures.

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*T4: Maintain and restore Green and Blue Infrastructure elements through integrated spatial development and conservation planning*

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Anchoring the concept of EU green infrastructure in the Danube Region

Green Infrastructure (GI) refers both to the concept and to structures in the landscape. It is a strategically planned network of (semi-)natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services. Since ecological connectivity is vital to reduce the biodiversity loss and to preserve ecosystem services, individual GI elements have to be connected by natural or artificial connectivity features or by sustainable use/ecosystem service areas.

Promote ecological connectivity through cooperation between macro-regional strategies

The ecological connectivity was recognized as an area/topic of interest of all Macro-regional strategies (MRS) that should be more explored in terms of collaboration and strengthening. Therefore, PACs of the EUSDR PA 6 started the initiative of MRS collaboration aiming to establish more systematic sectoral exchange between PAs. Main focus is on exploring ways for enhancing synergies and avoidance of duplication in terms of actions and funding, while increasing the efficiency of limited national (governmental) capacities.

Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta

Halt wetland losses and promote the restoration of degraded wetlands along Danube region (with a particular attention to the Danube delta), both for its role in biodiversity conservation and animals'



migration, and for the relevance of these environments in pollution prevention and carbon dioxide sequestration.

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*T5: Improve and/or maintain the soil quality in the Danube Region*

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<p>Enhance and/or maintain soil-related ecosystem services</p>	<p>Multi-functionality of soils represents the basis for many ecosystem services (ES). Since negative impacts on soil quality can result in indirect impacts on ecosystems and human welfare, it is essential to enhance and/or maintain soil-related ES. Therefore, DRC should develop harmonized soil map(s), carry out research and propose solutions for mitigating threats and pressures (agriculture, climate change, urban sprawl, etc.) and promote dissemination and knowledge exchange by different networks.</p>
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<p>Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents</p>	<p>Sites with remains of obsolete pesticides and similar chemicals (OPC) could pose a serious threat to human health and the environment. Danube Region Countries should identify these sites, prepare risk management plans (incl. intervention activities) and remediation plans in order to minimize the risk that OPC pose and to restore ecosystems. MRS approach would help to ensure a cross-border collaboration, stakeholder involvement, knowledge exchange and targeted use of EU funding streams.</p>
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*T6: Decrease air pollution in the Danube Region*

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<p>Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive</p>	<p>Enhanced and optimised air quality monitoring network and reports on air quality (based on measured and modelled data) would help tailor appropriate air quality enhancement measures. Moreover, Air Protection Programme for the Danube region should be developed, aiming to develop and disseminate appropriate tools for air quality assessment and management, while taking into account institutional knowledge and capacity gaps, need for coordinated and harmonised actions and sectoral collaboration.</p>
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Source: Ministry of Environment and Energy (2019).

## 5.4 COMPARISON OF THE EUSDR 2010 AND 2020 ACTION PLANS

As mentioned in the Subsection 5.2., the revision of the EUSDR Action Plan (AP) brought some changes in PA 6 targets. However, most of the targets and actions are still in line in both APs. The differences between APs are mostly in their activities presented in Table 4.

**Table 4. Comparison of Actions and Activities of the EUSDR 2010 and 2020 Action Plans**

2010 Action Plan	2020 Action Plan
<p>Action 1: To contribute to the 2050 EU vision and 2020 EU target for biodiversity – Activities:</p> <ul style="list-style-type: none"> <li>- Assessment made for EUSDR region on update and revision of national biodiversity strategic documents (NBSAPs) in line with CBD Strategic Plan for Biodiversity 2011-2020 and Aichi Biodiversity Targets</li> <li>- Follow up on implementation framework for the EU Biodiversity 2020 strategy</li> <li>- Assessment made for Danube Region on progress achieved towards Strategic Plan for Biodiversity 2011-2020 and Aichi Biodiversity Targets</li> </ul>	<p>Not in the 2020 Action Plan</p>
<p>Action 2: To manage Natura 2000 sites and other protected areas effectively – Activities:</p> <ul style="list-style-type: none"> <li>- Follow up on reports prepared by the European Commission (EC) for management of N2000 in Danube Region on implementation of conservation measures</li> <li>- Build capacity among riverine countries in Danube region</li> <li>- Assessment made for Danube Region according to assessment of conservation status and effectiveness of measures (management framework of Natura 2000 sites) for 2007-2012 period due to in 2013 prepared by the MS/COM</li> </ul>	<p>Action 1: Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin – Activities:</p> <ul style="list-style-type: none"> <li>- Establish the 5-country Transboundary UNESCO Biosphere Reserve "Mura-Drava-Danube" (TBR MDD) with effective management aiming at natural dynamic processes of the Mura, Drava and Danube rivers</li> <li>- Strengthen the participatory cross-border management (RO-UA-MO) of the Danube Delta promoting sustainable development and biodiversity conservation</li> </ul>

<ul style="list-style-type: none"> <li>- Follow up on financial instruments available for financing Natura 2000 network in the next programming period 2014 - 2020 to assess adequate financing of Natura 2000 activities in EUSDR region</li> <li>- To establish Mura-Drava-Danube bilateral Biosphere Reserve Hungary-Croatia</li> <li>- To establish Mura-Drava-Danube MAB Reserve Austria, Slovenia, Croatia, Hungary, and Serbia</li> <li>- DANUBEPARKS II - Anchoring the Danube River Network of Protected Areas as driver for transnational nature conservation strategies at the Danube</li> </ul>	<ul style="list-style-type: none"> <li>- Establish cooperation and harmonisation of the management plans between protected areas on transboundary Western Balkan rivers of the Danube basin (e.g. River Sava, River Drava, River Una, River Morava)</li> <li>- Develop (in a participatory manner) a Danube Masterplan for the Conservation and Restoration of Biodiversity Values for mainstreaming into inland navigation programmes and integration with the navigation Master Plan for the Danube (Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries)</li> </ul>
<p>Action 3: To protect and restore most valuable ecosystems and endangered species – Activities:</p> <ul style="list-style-type: none"> <li>- Follow up on assessment made by MS and COM applicable for Danube Region to improve knowledge of ecosystems and their services in the EU</li> <li>- Follow up on assessment made by MS and COM on strategic framework to set priorities for ecosystem restoration to identify priority restoration project for EUSDR region</li> <li>- Sub-Strategy on Sturgeon Conservation</li> <li>- Reproduction of populations of rare and endangered fish species – a necessary condition for biodiversity conservation and sustainable development of the Ukrainian-Slovak transborder area of the Tisa river basin. Short title: “Fish: joint basin – joint solutions”</li> <li>- Elaboration of Masterplan Bavarian Danube to protect and enhance biodiversity</li> </ul>	<p>Action 3: Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube region – Activities:</p> <ul style="list-style-type: none"> <li>- Implement the Danube-related measures from the Pan-European action plan for sturgeon conservation</li> <li>- Establish science-based cross-border monitoring and management of large carnivores</li> <li>- Identify further endangered habitats and endangered umbrella species of the Danube region and assess the need for development and/or implementation of their conservation action plans and/or management plans</li> </ul>
<p>Action 4: To explore together the appropriateness of reviewing the Convention Concerning Fishing in the Waters of the Danube – Activities:</p> <ul style="list-style-type: none"> <li>- Built cooperation, if appropriate, among parties regarding review of the Convention</li> </ul>	<p>Not in the 2020 Action Plan</p>



<p>Action 5: To develop green infrastructure in order to connect different bio-geographic regions and habitats – Activities:</p> <ul style="list-style-type: none"> <li>- Assessment made to identify activities to be implemented in the Danube Region Countries from the EU Green Infrastructure Strategy to best fit the EUSDR targets</li> <li>- Follow up on implementation of green corridors projects identified in EUSDR Action Plan</li> </ul>	<p>Action 5: Anchoring the concept of EU green infrastructure in the Danube region – Activities:</p> <ul style="list-style-type: none"> <li>- Development of a common approach to define and determine ecological corridors for key target species on land and improve the communication, knowledge and data sharing between Environmental, Transport and Spatial planning sectors on spatial integration of green and blue infrastructure</li> <li>- Establish a network of linked protected areas and policy stakeholders to enhance ecological connectivity outside protected areas</li> <li>- Pilot actions towards closing gaps of ecological corridors</li> </ul>
<p>Action 6: To reduce the spread of invasive alien species (IAS) – Activities:</p> <ul style="list-style-type: none"> <li>- To assess the effectiveness of IAS legislation in EUSDR region analysing implementation on new legislative framework on IAS in EUSDR region</li> </ul>	<p>Action 4: Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014 – Activities:</p> <ul style="list-style-type: none"> <li>- Collect and analyse data about alien species in the Danube Region</li> <li>- Develop an early warning and rapid response system, action plan(s) for the priority pathways at regional level and transboundary eradication plans for invasive species</li> <li>- Strengthen cooperation and knowledge transfer among all interested parties (involved sectors)</li> </ul>
<p>Action 7: To decrease the input of pesticides into the environment of the Danube Region</p>	<p>Action 8: Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents – Activities:</p>
<p>Action 8: To remove safely obsolete pesticides and other obsolete chemicals in the area of the Danube Region</p>	<ul style="list-style-type: none"> <li>- Identify locations with obsolete pesticide and similar chemical remains</li> <li>- Prepare risk management plans in the case of environmental accidents</li> <li>- Prepare remediation plans</li> </ul>
<p>Action 9: To prepare and implement transnational spatial planning and development policies for</p>	<p>Not in the 2020 Action Plan</p>



<p>functional geographical areas (river basins, mountain ranges, etc.) – Activities:</p> <ul style="list-style-type: none"> <li>- BIOREGIO Carpathians – Integrated management of biological and landscape diversity for sustainable regional development and ecological connectivity in the Carpathians</li> <li>- Carpathian Convention Working Group on Spatial Development</li> </ul>	
<p>Action 10: To ensure appropriate treatment of solid waste – Activities:</p> <ul style="list-style-type: none"> <li>- SMIWASTRES (“Transfrontier collaboration for establishment of efficient System for Municipal and Industrial Waste Treatment on the basis of their Sorting”)</li> <li>- To develop Solid waste management strategies</li> <li>- Identify, agree on, design and implement the projects at the Upper Tisza Region floodplains</li> </ul>	Not in the 2020 Action Plan
<p>Action 11: To create standardised and compatible information on land cover on transnational basis – Activities:</p> <ul style="list-style-type: none"> <li>- To collect harmonised land cover information</li> </ul>	Not in the 2020 Action Plan
<p>Action 12: To raise awareness about soil protection – Activities:</p> <ul style="list-style-type: none"> <li>- SONDAR - Soil Strategy Network in the Danube Region</li> </ul>	<p>Action 7: Enhance and/or maintain soil-related ecosystem services – Activities:</p> <ul style="list-style-type: none"> <li>- Develop harmonized Soil Maps for the Danube region</li> <li>- Strengthen the implementation of shelter belts as biotope network systems</li> <li>- Research on production potential of agricultural areas and application of appropriate agroecological measures</li> <li>- Research on appropriate measures for climate change mitigation and/or adaptation</li> </ul>
<p>Action 13: To decrease air pollutants – Activities:</p> <ul style="list-style-type: none"> <li>- Upgrading and further development of the monitoring network on air pollutants</li> </ul>	<p>ACTION 9: Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive – Activities:</p>

<ul style="list-style-type: none"> <li>- To take measures to gradually reduce the pollution, along the limit values for certain pollutants</li> </ul>	<ul style="list-style-type: none"> <li>- Upgrade and further development of the monitoring network on air pollutants based on Joint Research Centre (JRC) air quality studies</li> <li>- Report on air quality in the Danube Region</li> <li>- Develop Air Protection Programme for the Danube Region</li> </ul>
<p>Action 14: To raise awareness of the general public, by acknowledging and promoting the potentials of natural assets as drivers of sustainable regional development – Activities:</p> <ul style="list-style-type: none"> <li>- Keep updated INTERACT portal on EUSDR regarding best available information on PA 6 activities, projects and financing mechanism</li> <li>- Implement stakeholder awareness communication activities for Natura 2000 in EUSDR region parallel with COM/MS communication campaign on Natura 2000</li> <li>- Organisation of stakeholders’ seminars, workshops and conferences</li> <li>- Implementation of Green Danube Network project</li> <li>- Follow up on the visibility activities across all identified EUSDR PA 6 projects</li> </ul>	<p>Not in the 2020 Action Plan</p>
<p>Action 15: To educate children and young people – Activities:</p> <ul style="list-style-type: none"> <li>- In line communication activities from communication campaign on Natura 2000 and further develop and promote activities including children and young people</li> </ul>	<p>Not in the 2020 Action Plan</p>
<p>Action 16: To build capacities of local authorities in the environment-related matters – Activities:</p> <ul style="list-style-type: none"> <li>- Implement guidance document to improve understanding of the key sector of the EU nature legislation</li> </ul>	<p>Action 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters – Activities:</p> <ul style="list-style-type: none"> <li>- Strengthen horizontal knowledge transfer and access to environmental data between national authorities responsible for nature conservation (especially those of neighbouring countries)</li> </ul>



	<ul style="list-style-type: none"> <li>- Strengthen cooperation and knowledge transfer between scientific community and different stakeholders</li> <li>- Facilitate experience exchange of participatory management of Emerald Network sites aiming to restore and/or maintain conservation values while fostering benefits for local people</li> </ul>
	<p>Action 6: Promote ecological connectivity through cooperation between Macro-regional strategies (MRS) – Activities:</p> <ul style="list-style-type: none"> <li>- Establish the cooperation between the MRS approaches in establishing ecological connectivity and GI</li> </ul>
	<p>Action 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta – Activities:</p> <ul style="list-style-type: none"> <li>- Development and implementation of a common approach of halting wetland losses and promoting the restoration of degraded wetlands along the Danube region based on an assessment of the current situation.</li> </ul>

Source: European Commission, 2010b, European Commission, 2020a

Table 4 shows that the EUSDR 2020 AP Action 1: Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin is compliant with the 2010 AP Action 2: To manage Natura 2000 sites and other protected areas effectively. The difference between those actions is in their activities – there are more activities in the framework of 2010 AP and among them there are several concrete projects, such as to establish Mura-Drava-Danube bilateral Biosphere Reserve Hungary-Croatia, to establish Mura-Drava-Danube MAB Reserve Austria, Slovenia, Croatia, Hungary, and Serbia, and DANUBEPARKS II. Additionally, among the activities in the 2010 AP, there is an assessment of conservation status and effectiveness of measures. On the other hand, the 2020 AP activities include strengthening participatory cross-border management, promotion of sustainable development and biodiversity conservation, establishment of cooperation and harmonisation of the management plans.

The 2020 AP Action 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters complies with the 2010 AP Action 16: To build capacities of local authorities in the environment-related matters. The activities in the framework of 2020 AP include strengthening horizontal knowledge transfer, strengthening the cooperation and knowledge transfer, and facilitating experience exchange of participatory management of Emerald Network sites aiming to restore and/or maintain conservation values while fostering benefits for local people. On the other hand, the 2010 AP activity is to implement

guidance document to improve understanding of the key sector of the EU nature legislation, which is one activity only, but it achieves the same impact as activities from the 2020 AP.

The 2020 AP Action 3: Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube region is compliant with the 2010 AP Action 3: To protect and restore most valuable ecosystems and endangered species. Activities in the framework of both Actions related to protecting and restoring endangered species are dealing with the implementing measures related to sturgeon conservation. However, there is an activity in the 2010 AP that deals with improvement of reproduction of populations of rare and endangered fish species, while the 2020 AP is dealing with development of new conservation action and/or management plans for endangered species.

The 2020 AP Action 4: Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014 is compliant with the 2010 AP Action 6: To reduce the spread of invasive alien species (IAS). While the 2020 AP action deals with collecting and analysing data, developing response systems and action plans, and strengthening cooperation and knowledge transfer, the 2010 AP Action 4 had only one activity – assessing the effectiveness of IAS legislation.

The 2020 AP Action 5: Anchoring the concept of EU green infrastructure in the Danube region complies with the EUSDR 2010 AP Action 5: To develop green infrastructure in order to connect different biogeographic regions and habitats. Activities in the framework of 2010 AP included assessment of activities and implementation of green corridors, while the 2020 AP took the longer path dealing with a development of common approach to define ecological corridors, establishment of a network of linked protected areas and pilot actions towards closing gaps of ecological corridors.

The 2020 AP Action 7: Enhance and/or maintain soil-related ecosystem services is compliant with the 2010 AP Action 12: To raise awareness about soil protection. Activity in the framework of 2010 AP was the project SONDAR – Soil Strategy Network in the Danube Region, while 2020 AP activities can be interpreted as its continuation with activities related to development of harmonized Soil Maps, strengthening the implementation of shelter belts and research.

The 2020 AP Action 8: Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents is compliant with the EUSDR 2010 AP Action 7: To decrease the input of pesticides into the environment of the Danube Region, and Action 8: To remove safely obsolete pesticides and other obsolete chemicals in the area of Danube Region. The activities of the 2020 AP include identification of locations with the obsolete pesticides, preparation of risk management plans and remediation plans, while 2020 AP was more concrete and it was directly dealing with a decrease in the input of pesticides and removing safely obsolete pesticides and other chemicals.

The 2020 AP Action 9: Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive is compliant with the 2010 AP Action 13: To decrease air pollutants. The 2020 AP activities include upgrading and development of monitoring network, reporting on air quality and development of Air Protection Programme. On the other hand, 2010 AP was again more concrete in its activities with taking measures to gradually reduce the pollution.



The 2020 AP Action 6: Promote ecological connectivity through cooperation between Macro-regional strategies (MRS) and Action 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta were not part of the 2010 AP.

Also, there are several Actions in the framework of 2010 AP that are not part of the 2020 AP and they are: Action 1: To contribute to the 2050 EU vision and 2020 EU target for biodiversity; Action 4: To explore together the appropriateness of reviewing the Convention Concerning Fishing in the Waters of the Danube; Action 9: To prepare and implement transnational spatial planning and development policies for functional geographical areas (river basins, mountain ranges, etc.); Action 10: To ensure appropriate treatment of solid waste; Action 11: To create standardised and compatible information on land cover on transnational basis; Action 14: To raise awareness of the general public, by acknowledging and promoting the potentials of natural assets as drivers of sustainable regional development; and Action 15: To educate children and young people.

The comparison of the Actions and Activities of the EUSDR 2010 and 2020 Action Plans one by one showed that most of the actions in both plans are compliant and that they are trying to achieve the same objectives. The 2020 Action Plan provides strategic basis for concrete activity, details being provided in a separate document (Ministry of Environment and Energy, 2019). The 2010 Action Plan included details on necessary activities for some areas related to biodiversity.

## 6 RELEVANCE OF THE EUSDR FOR BIODIVERSITY

Biodiversity is the totality of all living organisms that are integral parts of terrestrial, marine and other aquatic ecosystems and ecological complexes; and includes diversity within species, between species, and diversity between ecosystems (United Nations, 1992). Biodiversity objectives are the protection or enhancement of ecosystems, species or genetic resources through the preservation or ex-situ conservation, or elimination of existing damage to the environment; integrating biodiversity issues and ecosystem services into the development goals of recipient countries and making economic decisions, through institution building, capacity development, strengthening the regulatory and policy framework or research.

At the level of the European Union, the most important strategic document in the field of biodiversity is the Biodiversity Strategy for 2030 (European Commission, 2020b).

The Biodiversity Strategy for 2030 (European Commission, 2020b) is a comprehensive, systematic and ambitious long-term plan for nature protection and ecosystem restoration and is the backbone of the European Green Plan and EU leadership in international advocacy for global public goods and sustainable development goals.

The five main drivers of biodiversity loss identified in the Biodiversity Strategy are: land and sea use change, overexploitation of natural resources, climate change, pollution and invasive alien species. Protecting and restoring biodiversity has benefits for the agriculture and food production sector and potential economic benefits for businesses, as well as enabling people to be more resilient to environmental changes. As such, the Biodiversity Strategy sets out the following biodiversity commitments to be met by 2030:

- Legally protect a minimum of 30% of the EU's land area and 30% of the EU's sea area and integrate ecological corridors, as part of a true Trans-European Nature Network
- Strictly protect at least a third of the EU's protected areas, including all remaining EU primary and old-growth forests
- Effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately
- Propose legally binding EU nature-restoration targets in 2021, subject to an impact assessment
- Restore significant areas of degraded and carbon-rich ecosystems
- Ensure that habitats and species show no deterioration, and that at least 30% of those in unfavourable conservation status reach favourable status, or at least show a positive trend
- Reverse the decline in pollinators
- Reduce the risk and use of chemical pesticides by 50% and reduce the use of more hazardous pesticides by 50%
- Manage at least 25% of agricultural land under organic farming and significantly increase the uptake of agro-ecological practices
- Remediate significant areas of contaminated soil sites
- Plant 3 billion trees for biodiversity, according to ecological principles
- Restore at least 25,000 km of free-flowing rivers
- Reduce by 50% the number of 'red list' species threatened by invasive alien species
- Reduce losses of nutrients from fertilisers by 50%, resulting in a reduction in the use of fertilisers of at least 20%
- Support cities with more than 20,000 inhabitants to put in place ambitious urban greening plans by the end of 2021



- Eliminate or minimise the negative effects of fishing and extraction activities on sensitive species and habitats
- Eliminate or reduce by-catch of marine species to a level that allows their recovery and conservation.

The EU Biodiversity Strategy represents the most important strategic document at the EU level for the EUSDR PA 6. All PA 6 actions contribute to the objectives of the EU Biodiversity Strategy, which is summarised in Table 5.

**Table 5. Contribution of the PA 6 actions to the EU Biodiversity Strategy**

PA 6 Actions	Contribution to the EU Biodiversity strategy 2020 AP PA 6
ACTION 1: Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin	In order to have a truly coherent and resilient Trans-European Nature Network, it will be important to set up <b>ecological corridors</b> to prevent genetic isolation, allow for species migration, and maintain and enhance healthy ecosystems. In this context, investments in green and blue infrastructure <sup>6</sup> and cooperation across borders among Member States should be promoted and supported, including through the European Territorial Cooperation (p. 5).
ACTION 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters	The Commission will support Member States and local and regional authorities through technical guidance and help to mobilise funding and capacity building (p12).
ACTION 3: Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube Region	Among key commitments for nature protection by 2030 is to effectively manage all protected areas, defining clear conservation objectives and measures, and monitoring them appropriately (p. 5).  In addition, the EU Biodiversity Strategy explicitly states: “The EU is ready to continue working with its partners and further increase its support post-2020. This will be part of its work on biodiversity conservation,

<sup>6</sup> [Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure](#) (SWD(2019) 193).



	restoration, sustainable use and mainstreaming in all development and partnership policies” (p. 21).
ACTION 4: Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014	<b>Protecting and restoring nature will need more than regulation alone.</b> It will require action by citizens, businesses, social partners and the research and knowledge community, as well as strong partnerships between local, regional, national and European level (p. 3).
ACTION 5: Anchoring the concept of EU green infrastructure in the Danube Region	The promotion of healthy ecosystems, green infrastructure and <b>nature-based solutions</b> should be systematically integrated into urban planning, including in public spaces, infrastructure, and the design of buildings and their surroundings (p.12)
ACTION 6: Promote ecological connectivity through cooperation between macro-regional strategies	In addition, in order to have a truly coherent and resilient Trans-European Nature Network, it will be important to set up <b>ecological corridors</b> to prevent genetic isolation, allow for species migration, and maintain and enhance healthy ecosystems. In this context, investments in green and blue infrastructure <sup>7</sup> and cooperation across borders among Member States should be promoted and supported, including through the European Territorial Cooperation (p. 5).
ACTION 7: Enhance and/or maintain soil-related ecosystem services	Addressing land take and restoring soil ecosystems includes recognition that soil is one of the most complex of all ecosystems. It is a habitat in its own right, and home to an incredible diversity of organisms that regulate and control key ecosystem services such as soil fertility, nutrient cycling and climate regulation. <b>Soil is a hugely important non-renewable resource</b> , vital for human and economic health, as well as the production of food and new medications. In addition, a <b>mission in the area of soil health and food</b>

<sup>7</sup> [Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure](#) (SWD (2019) 193 final).

	under Horizon Europe will aim to develop solutions for restoring soil health and functions (p. 8).
ACTION 8: Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents	Key commitments for nature restoration plan until 2030 include achieving a significant progress in the remediation of contaminated soil sites (p. 14).
ACTION 9: Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive	Provide for <b>green urban spaces</b> , from parks and gardens to green roofs and urban farms in order to reduce ( <i>inter alia</i> ) air pollution; putting forward <b>Zero Pollution Action Plan for Air, Water and Soil</b> (p. 8).
ACTION 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta	Strictly protect carbon-rich ecosystems, such as peatlands, grasslands, wetlands, mangroves and seagrass meadows should also be strictly protected, taking into account projected shifts in vegetation zones. (p.4)  In addition, to <b>restore freshwater ecosystems and the natural functions of rivers, at least 25,000 km of rivers will be restored into free-flowing rivers by 2030<sup>8</sup></b> through the removal of primarily obsolete barriers and the restoration of floodplains and wetlands (p. 11).

Source: Authors

Some Biodiversity Strategy objectives are also compliant with actions in the framework of other PAs. For example, the Strategy's objectives 'Eliminate or minimise the negative effects of fishing and extraction activities on sensitive species and habitats' and 'Eliminate or reduce by-catch of marine species to a level that allows their recovery and conservation' are compliant with the PA 4: Water quality – Action 5: MIGRATORY FISH: Promote measures to enable fish migration in the Danube River basin. The protection of the biodiversity is amongst key elements identified as relevant for implementation of the European Green Deal. Implementation of the EU Biodiversity Strategy for 2030 is necessary for the green transition, with the ultimate goal of reaching climate neutrality by 2050 and transformation of the EU into a fair and prosperous society with a modern and competitive economy.

<sup>8</sup> The target of 25,000 km is based on the Commission's assessment of what is achievable in the EU by 2030.

## 7 AREAS OF COOPERATION BETWEEN PA 6 AND OTHER PAs

The priority areas within 2020 AP that contribute to the EU Cohesion Policy objective “a greener Europe” are:

- Priority Area 1a: Waterways Mobility
- Priority Area 1b: Rail-Road-Air Mobility
- Priority Area 2: Sustainable Energy
- Priority area 3: Culture and Tourism
- Priority Area 4: Water Quality
- Priority Area 5: Environmental Risks and
- Priority Area 8: Competitiveness of Enterprises.

The sector-specific background is examined, with focus on the EU Biodiversity Strategy. The Biodiversity Strategy is identified in the 2020 AP as relevant for PA 4 Water Quality. Finally, the actions and targets are examined with focus on those contributing to the biodiversity targets. Based on these criteria, within PA 4 **Action 3 Water and Agriculture** is identified as key area of cooperation. The description and targets of PA 4 include, *inter alia*, raising awareness related to the link between agricultural practices, water and soil quality and **biodiversity**, which is directly linked with PA 6.

Other relevant actions within PA 4 are:

- Action 6: climate change, as it promotes the establishment and maintenance of green infrastructure and raises farmers’ and public awareness about the importance of soil moisture and soil water retention capacity in soil fertility under changing climate conditions. Green infrastructure is among key actions of the PA 6 (see Table 6).
- Action 7: Tools, as it explicitly includes strengthening territorial cooperation at different levels, including at EUSDR level with PA 6 (details in Table 6).

Finally, all actions in the 2020 EUSDR Action Plan have been examined as well as those directly contributing to the PA 6 actions. Those are identified in Table 6.

**Table 6. Potential Areas for cooperation between PA 6 and other PAs**

PA 6 Biodiversity and landscapes, quality of air and soils	Other PAs
Action 1: Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin	PA 1a, Waterway mobility, Action 4: Support the further roll-out and enhancement of River Information Services
Action 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters	PA 10, Institutional capacity and cooperation  Action 1: to improve institutional capacities in order to provide high-quality public services  Action 7: To strengthen the involvement of civil society and local actors in the Danube Region



	<p>Action 8: To enhance capacities of cities and municipalities to facilitate local and regional development</p>
<p>Action 3: Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube Region</p> <p>Action 4: Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014</p> <p>Action 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta</p>	<p>PA 7 Knowledge society</p> <p>All actions can be considered as building necessary evidence-based background for development of the conservation/management plans. These are:</p> <p>Action 1: To promote coordination of national, regional and EU funds to stimulate excellence in R&amp;I, in research areas specific for Danube Region</p> <p>Action 2: To promote participation of Danube countries in EU R&amp;I Programmes, in particular in Horizon Europe</p> <p>Action 3: To strengthen cooperation among universities, research organisations and SMEs in the Danube Region</p> <p>Action 4: To increase awareness and visibility of science and innovation in the Danube Region</p> <p>Action 5: To support exchange of information and experience sharing for the purpose of preparation of future strategic R&amp;I documents applicable in the new programming period</p> <p>Action 6: To promote horizontal cooperation in science and technology across all PAs and other MRS</p>
<p>Action 5: Anchoring the concept of EU green infrastructure in the Danube Region</p>	<p>PA 4 Water Quality, ACTION 6: CLIMATE CHANGE, as it promotes the establishment and maintenance of green infrastructure and natural water retention measures (NWRMs)</p> <p>PA 5 Environmental Risks, Action 1: Provide sufficient support for development and execution of risk management plans for different hazards, as it includes promotion of</p>



	sustainable floodplain management including green infrastructure
Action 6: Promote ecological connectivity through cooperation between macro-regional strategies	<p>PA 4, Action 7: TOOLS: Enhance cooperation, increase and exchange knowledge and secure financing to water quality measures in the Danube Region, as it includes strengthening territorial cooperation at different levels, including other macro-regional strategies;</p> <p>PA 2, Action 8: To encourage exchange of information and best practices to improve cooperation, create synergies and to initiate joint projects with other macro-regional initiatives and relevant stakeholders at European and global levels</p>
Action 7: Enhance and/or maintain soil-related ecosystem services	PA 4, Action 3: Water and Agriculture
Action 8: Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents	PA 5, Action 1 Provide sufficient support for development and execution of risk management plans for different hazards
Action 9: Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive	<p>PA 2: Sustainable Energy, PA 4 Water Quality as relevant sector background includes ambient air quality directives. Examples of relevant actions include:</p> <p>PA 2, Action 1: To further explore the sustainable use of clean biomass, solar energy, geothermal, hydropower and wind power to increase the energy independency and to promote and support multipurpose cross border RES utilisation projects</p> <p>Action 3: To promote decarbonisation and reduction of air pollutants in the transport sector, regarding both public and freight transportation by developing the infrastructure for alternative fuels</p> <p>PA 4, Action 3: Water &amp; agriculture</p>

Source: Authors



In line with DNSH principle, the EU funded activities should not significantly harm the protection and restoration of biodiversity and ecosystems. The experience in application of the DNSH principle for biodiversity, within Recovery and Resilience Facility shows that focus has been on the compliance with the EU law. However, compliance with the applicable EU and national environmental regulations is not always sufficient. An activity significantly harms biodiversity if it is significantly detrimental for the good condition and resilience of ecosystems, or detrimental to the conservation status of habitats and species, including those of the European Union's interest. Thus, to minimise risk for biodiversity and/or improve mitigation measures, close cooperation with PA 6 is necessary.

This primarily relates to PA 2 Sustainable Energy, Action 1: To further explore the sustainable use of clean biomass, solar energy, geothermal, hydropower and wind power to increase the energy independency and to promote and support multipurpose cross border RES utilisation projects. This action, especially regarding the use of biomass for energy production needs to align with the objectives of the Biodiversity Strategy for 2030 and the European Climate Law, notably as part of the Renewable Energy Directive and the delegated acts under the Taxonomy Regulation. Regarding biomass, attention must be paid to the sustainability of local supply and to the serious impact on air quality, especially on levels of Particulate Matter and Benzo(a)pyrene which in many areas of the Danube region are exceeding the EU standards. The risk of trade-offs of scaling up biomass production, harvesting, processing and combustion, e.g., on biodiversity, protected habitats, water quantity and quality, and soils, shall also be considered. Action 3: To promote decarbonisation and reduction of air pollutants in the transport sector, regarding both public and freight transportation by developing the infrastructure for alternative fuels. As biodiversity loss is a major sustainability challenge for transport companies and can lead to introduction of invasive alien species (IAS) cooperation between mobility and biodiversity is necessary to achieve objectives of both sectors. In addition, cooperation with PA 3 Culture and Tourism, Action 1: Promote sustainable tourism in the Danube Region and capitalise on EUSDR projects in the areas of culture, nature and tourism is necessary, as capitalisation on nature requires biodiversity preservation.

The analysis of the content of the activities planned in EUSDR PAs apart from the PA 6 shows that cooperation is needed in various areas to improve protection of biodiversity or minimise risks. The key area of cooperation is:

- PA 4, Water Quality – as improvement of water quality affects biodiversity, but also landscapes.

Sustainability criteria require mainstreaming biodiversity in all activities and investments, thus cooperation with other PAs is necessary. The areas that should be prioritised are as follows:

- Transport and mobility – especially regarding improvement of air quality and enabling different use of water
- Sustainable energy
- Culture and tourism
- Reduction of environmental risks – improves air and soil quality, landscapes and helps preserving the biodiversity
- Knowledge and research – affect the biodiversity, landscapes, air and soil using the technological progress to introduce production and consumption of products that do not make harm to environment, and thus, biodiversity.
- Institutional capacity

## 8 CONTRIBUTION OF THE EUSDR PILLAR 2 AND PA6 TO HORIZONTAL FRAMES

The Consolidated Input (DSP 2019, p. 22) for the Action Plan defines the following "horizontal frames, relevant for all five strategic objectives to be implemented in the 12 Priority Areas": (i) digitalisation and (ii) migration and demographic change. The Revised Action Plan further also includes (iii) climate change and sustainable development as horizontal topics.

As sustainable development is an overarching concept, here the focus is on the environmental sustainability, in line with the focus of the EUSDR Pillar 2 and PA 6, and is based on criteria in the Taxonomy Regulation.

As a result, the horizontal policies considered here are: (i) climate change mitigation; climate change adaptation; the sustainable use and protection of water and marine resources; the transition to a circular economy; pollution prevention and control, protection and restoration of biodiversity and ecosystems; (ii) safeguards related to protection of human rights, rule of law, social inclusion and gender issues; migration and demographic change, and (iii) digitalisation.

The extent of the contribution to different horizontal policies varies among PAs and the specific actions.

Each of the priority actions of the EUSDR Pillar 2 contributes to at least one of the environmental objectives;

- PA 4 Water quality is fully in line with the sustainable use and protection of water resources
- PA 5 Environmental risks contributes to the climate change mitigation and adaptation, sustainable use and protection of water and marine resources, as well as pollution prevention and control
- PA 6 Biodiversity and landscapes, quality of air and soils is fully in line with environmental objective protection and restoration of biodiversity and ecosystems.

Table 7 provides the overview of Pillar 2 objectives and horizontal policies they contribute to.

**Table 7. Contribution of Pillar 2 objectives to horizontal policies**

Pillar 2 objective	Horizontal policy
Establish a climate influence monitoring	Climate change adaptation, digitalisation
Reducing environmental risks	Climate change adaptation, climate change mitigation, sustainable use and protection of water and marine resources, as well as pollution prevention and control, digitalisation
Improving protection against natural hazards	Climate change adaptation, the sustainable use and protection of water and marine resources, digitalisation

Improving waste management	Climate change mitigation, circular economy, social inclusion
Improving waste water treatment	Climate change adaptation,
Safeguarding drinking water supply	Climate change adaptation, sustainable development, the sustainable use and protection of water and marine resources; pollution prevention and control
Reducing water pollution and improve water quality	Climate change adaptation, the sustainable use and protection of water and marine resources; pollution prevention and control
Safeguarding biodiversity	Protection and restoration of biodiversity and ecosystem
Improving soil quality	Climate change mitigation and adaptation, social inclusion, gender issues
Improving the use of spatial planning for safeguarding open space and sound land use in Agglomerations	Climate change adaptation and mitigation, social inclusion, gender issues, digitalisation
Ensure active involvement of and dialogue with all stakeholders with the general public including awareness raising and education in water management	Climate change adaptation, social inclusion, gender issues
Promote water related measures in urban planning	Climate change adaptation, sustainable use and protection of water and marine resources, social inclusion and gender issues, digitalisation

Source: Authors

The objective to *establish a climate influence monitoring* enables understanding of the climate change and its consequences. Therefore, it is a starting point for adaptation activities. It also can benefit from wider use of digital tools and digitalisation. Objective *reducing environmental risks* contributes to horizontal policies related to climate change, sustainable use and protection of water and marine resources and pollution prevention and control. Also, risk reduction strategies can rely on automated digital early warning systems, so it contributes to digitalisation. Objective *improving protection against natural hazards* also contributes to adaptation to the climate change, the sustainable use and protection of water and marine resources and digitalisation. Objective to *enhance and/or maintain soil-related ecosystem services* is relevant for climate change mitigation, as they serve as carbon sinks.

The good status of the environment and resilient and healthy ecosystems are crucial in tackling and adapting to climate change. They serve as carbon sinks thus their restoration and protection are necessary. The healthy ecosystems are vital in fighting climate change. Climate change affects biodiversity as climate variables largely determine the geographical distribution ranges of species. In areas where the climate is no longer suitable, some species shift their geographical ranges and others go extinct locally.

Objectives *improving waste management* and *improving waste water treatment* both are affecting horizontal policies related to sustainable development and climate change. Improvement of waste

management and waste water treatment will lead to mitigation of climate change. On the other hand, related actions will improve the environmental situation, and therefore, contribute to sustainable development. Improved waste management contributes to transition to circular economy and also creates new business opportunities and can contribute to social inclusion.

*Safeguarding drinking water supply and reducing water pollution and improve water quality* are also objectives that affect sustainable development and climate change. *Improve clean water and sanitation* is one of the Sustainable Development Goals (SDGs). Therefore, these Pillar 2 objectives are contributing to sustainable development. On the other hand, climate change mitigation, the sustainable use and protection of water and marine resources and pollution prevention and control are necessary for ensuring clean water.

Objective *safeguarding biodiversity* contributes to horizontal policies related to climate change since preserved biodiversity is one of the ways of fighting climate change. Improving soil quality contributes to horizontal policies related to sustainable development since improved soil quality helps to biodiversity preservation, improves the food production, improves the water quality, etc. It is also relevant for gender and social issues, especially in rural areas.

Similar contribution to horizontal policies is that of the objective *improving the use of spatial planning for safeguarding open space and sound land use in agglomerations*. This objective refers to green infrastructure in agglomerations, which affects climate change and sustainable development. It also requires digitalisation.

*Ensure active involvement of and dialogue with all stakeholders with the general public including awareness raising and education in water management* affects several horizontal policies, including climate change, sustainable development and social inclusion. Direct impact of the objective is on the involvement of society as a whole in environment related questions. Consequently, raising awareness and education of society on environmental issues indirectly affects sustainable development and climate change mitigation. Finally, the objective *promote water related measures in urban planning* contributes to sustainable development since it contributes to the achievement of SDG related to water.

Digitalisation is horizontal objective of the 2020 EUSDR Action Plan, addressed by PA 7 (Knowledge Society), PA 8 (Competitiveness) and PA 9 (People and Skills). Thus, the achievement of these horizontal objective requires cooperation of PA 6 with other PAs (as described in the previous chapter).

The PA 6 contributes significantly to the following environmental issues: climate change mitigation; climate change adaptation; the sustainable use and protection of water and marine resources. In addition to enhancing biodiversity, it also aims to significantly contribute to pollution prevention and control.

The social and gender issues are addressed indirectly, as 2020 Action Plan aims to strengthen economic and social development through environmental protection. Considering gender issues in relation to biodiversity involves identifying the influence of gender roles and relations on the use, management and conservation of biodiversity. Gender roles of women and men include different labour responsibilities, priorities, decision-making power, and knowledge, which affect how women and men use and manage biodiversity resources. Thus, this issue can be addressed by management plans which should recognise that the roles and responsibilities of men and women in the management of

biodiversity, and the ability to participate in decision-making, vary and generally tend to favour males. Strong gender differences are evident in economic opportunities and access to and control over land, biodiversity resources and other productive assets, in decision-making power, as well as in vulnerability to biodiversity loss, climate change and natural disasters.

PA 6 Action 1: Establish transnational cooperation and harmonisation of the strategic management documents between protected areas on river systems in the Danube basin contributes to protection of the ecosystems. As healthy ecosystems are carbon sinks, this action contributes to climate change mitigation. In addition, rivers and protected areas are examples of nature-based solutions and climate change adaptation measures. Furthermore, successful management enables sustainable use and protection of water resources and pollution prevention and control.

Action 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters contributes to horizontal objectives related to involvement of society in decision-making processes.

Action 3: Develop and/or implement conservation action plans and/or management plans for endangered umbrella species of the Danube Region contributes to protection of ecosystems, preservation of biodiversity and by doing so positively affects climate change mitigation and environment protection, and therefore, sustainable development.

Action 4: Promote research to develop and apply the most appropriate methods for prevention and control of IAS and for management of the priority pathways in line with the DIAS Strategy and IAS Regulation (EU) 1143/2014 dealing with reduction of the spread of invasive alien species. Application of the most appropriate methods helps preservation of biodiversity, supports healthy ecosystems and thus facilitates climate change mitigation.

Action 5: Anchoring the concept of EU green infrastructure in the Danube Region contributes to climate change mitigation and sustainable development since green infrastructure is affecting these two horizontal policies.

Action 6: Promote ecological connectivity through cooperation between macroregional strategies contributes to several horizontal policies, including involvement and cooperation, climate change and sustainable development. The action itself encourages involvement and cooperation regarding environmental questions, which are part of sustainable development concept, but also a tool for climate change mitigation.

Action 7: Enhance and/or maintain soil-related ecosystem services contributes to sustainable development and climate change related horizontal policies since improvement of soil-related ecosystem services contributes to safeguarding biodiversity, which affects climate change mitigation and sustainable development. It is similar with Action 8: Identify locations with obsolete pesticide and similar chemical remains and prepare a remediation plan and a risk management plan in the case of environmental accidents, which represents the basis for soil remediation, and consequently climate change and sustainable development.

Action 9: Take measures to gradually reduce air pollution, with as a minimum step to respect the limit values for pollutants according to the Air Quality Directive contributes the horizontal policies related to



climate change since air pollution is one of the largest pollutions that affects climate change. Therefore, reduction of air pollution will impact climate change mitigation. Also, it affects sustainable development since reduction of pollution of any kind positively affects environment, one of the pillars of sustainable development concept.

Finally, Action 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta contributes to horizontal policies related to climate change since it helps biodiversity preservation, which is a tool for climate change mitigation.

## 9 SCENARIO DEVELOPMENT

As a part of the analysis of biodiversity in the Danube Region, two scenarios for the compliance with the objectives of the European Green Deal and the EU Biodiversity Strategy have been developed. First of these scenarios is the baseline scenario where nothing is changed. The second scenario is developed according to the previous section in a way that elements that are not compliant with relevant strategic documents have been improved.

The key elements affected by the PA 6 actions, activities, that are analysed in this report are compared to the S set of indicators that provides a trusted and robust source of information at European level to assess the state of biodiversity, pressures on it and responses to help conserve biodiversity and halt its loss. Indicators that will be analysed in this report are:

- Abundance and distribution of selected European species
- Ecosystem coverage
- Nationally designated terrestrial protected areas in Europe
- Natura 2000 sites designated under the Habitats and Birds Directives
- Ecological footprint of European countries
- Public awareness of biodiversity in Europe.

Indicator Abundance and distribution of selected European species refers to birds and butterflies, the species that are sensitive to environmental change and can indicate the health of the environment. Ecosystem coverage indicator, which is classified under the EU 'Mapping and Assessment of Ecosystems and their Services' (MAES) framework refers to vulnerable and biodiversity-rich ecosystems such as heathlands and wetlands. Indicator Nationally designated terrestrial protected areas in Europe deals with the expansion of terrestrial protected areas.

Natura 2000 sites designated under the Habitats and Birds directives measures coverage of terrestrial Natura 2000 areas. Indicator Ecological footprint of European countries does not measure biodiversity loss directly, but it tracks global pressures on biodiversity and can be used to complement other measures of ecosystem-specific impacts on biodiversity. Finally, indicator public awareness of biodiversity in Europe illustrates recognition and understanding of the term 'biodiversity'.

Additionally, for the monitoring of the implementation of the EU Biodiversity strategy the EC has established the Knowledge Centre for Biodiversity, which supports policymaking by developing tools that support the implementation of the EU Biodiversity Strategy, including its global dimension; identifying, filtering and structuring relevant information and making it accessible bringing together researchers, policy-makers, NGOs, industry and citizens; and analysing, synthesising available evidence and communicating it in a transparent, tailored and concise manner. Additionally, the EU Biodiversity Strategy Actions Tracker has been developed to track progress in the implementation of the actions listed in the EU Biodiversity Strategy for 2030. Several indicators have been developed to track the implementation of the Strategy and those are:

- Indicator A1.1.1 - Terrestrial protected area coverage
- Indicator A1.1.2 - Natura 2000 terrestrial protected area coverage
- Indicator A1.1.3 - Nationally designated terrestrial protected area coverage
- Indicator A1.2.1 - Marine protected area coverage
- Indicator B1.1.1 - Common bird index by type of species

- Indicator B2.1.1 - Grassland butterfly index
- Indicator B5.1.1 - Area under organic farming.

Indicator A1.1.1 - Terrestrial protected area coverage presents percentage of land, per each European Country and at European level (EU 27), covered by protected areas. The indicator is calculated by the sum of nationally designated protected areas and the areas of Natura 2000 sites. Their overlaps, reported once, are also included.

Indicators A1.1.2 - Natura 2000 terrestrial protected area coverage and A1.1.3 - Nationally designated terrestrial protected area coverage have already been explained, while indicator A1.2.1 - Marine protected area coverage illustrates percentage of marine waters, per each European Country and at European level (EU 27), covered by protected areas. The indicator is calculated by the sum of nationally designated protected areas and the areas of Natura 2000 sites.

Indicator B1.1.1 - Common bird index by type of species analyses abundance and the diversity of a selection of common bird species associated with specific habitats, while the Indicator B2.1.1 - Grassland butterfly index measures the population trends of 17 butterfly species at EU-level. Finally, Indicator B5.1.1 - Area under organic farming measures the share of total utilised agricultural area (UAA) occupied by organic farming (existing organically-farmed areas and areas in process of conversion).

## 9.1 **BASELINE SCENARIO**

The baseline scenario assumes that all milestones that have been proposed in the EUSDR 2020 Action Plan will be achieved by 2027. The EUSDR 2020 Action Plan PA 6 actions and activities have been explained in detail in the previous reports and this scenario provides the effect of implementation of the actions and activities measured by Indicators presented in the previous subsection.

Abundance and distribution of selected European species is affected by the restoration of water habitats along the Danube river. As a result, the birds are positively affected by the restored sites. Still activities to further protect them (e.g. through the LIFE Danube Free Sky project) are expected to contribute to abundance and distribution of species.

Increase in ecosystem coverage is affected by the PA 6 Action 5: Anchoring the concept of EU green infrastructure in the Danube Region since the Action recognises the need of green infrastructure, especially in large cities that need semi-natural areas with other environmental features, designed and managed to deliver a wide range of ecosystem services. Additionally, by implementing Action 7: Enhance and/or maintain soil-related ecosystem services by reducing negative impacts on soil quality can result in indirect positive impacts on ecosystems and human welfare. Finally, by PA 6 Action 10: Stimulate the management and the ecological restoration of wetlands, particularly in the Danube delta monitoring and counteracting wetland losses, stopping wetland losses and promoting the restoration of degraded wetlands will be addressed. This will have a role in biodiversity conservation, contribute to animal migration, pollution prevention and carbon sequestration.

Natura 2000 sites designated under the Habitats and Birds Directives is slightly affected with the PA 6 Action 1: Establish transnational cooperation and harmonisation of the strategic management



documents between protected areas on river systems in the Danube basin since this Transnational cooperation and harmonisation of the strategic planning documents, especially Natura 2000 site-specific management plans, will help ensure consistency and sustainability in implementation of conservation measures and contribute to better nature protection of these areas.

Positive change in public awareness of biodiversity in Europe is affected by most of the PA 6 Actions. Firstly, the Action 2: Build capacities of national and local authorities, non-governmental organisations, expert and scientific community in the environment related matters since it aims at strengthening the knowledge transfer between national authorities, scientific community and different stakeholders, which presents a first step of raising public awareness of biodiversity. Also, PA 6 Action 6: Promote ecological connectivity through cooperation between macro-regional strategies (MRS) since the cooperation between macro-regions shows the importance of biodiversity, and thus, raises public awareness.

Terrestrial protected area coverage is partially affected by PA 6 Action 1: Establish transnational cooperation and harmonization of the strategic management documents between protected areas on river systems in the Danube basin.

Increase in area under organic farming is slightly affected by PA 6 Action 7 Enhance and/or maintain soil-related ecosystem services (ES), i.e., Activity 7.3: Research on production potential of agricultural areas and application of appropriate agroecological measures. This could possibly lead to recognition of importance of organic farming, and therefore, expand the area under organic farming.

The summary of the baseline scenario is presented in Table 8.

**Table 8. Summary of baseline scenario**

Indicator	Impact	Explanation
Abundance and distribution of selected European species	Medium	The restoration of water habitats along the Danube river. As a result, the birds are more attracted to the restored sites and generally are not endangered. Still activities to further protect them (e.g. through the LIFE Danube Free Sky project) are expected to contribute to abundance and distribution of species.
Ecosystem coverage	Slightly positive impact	Three action in the framework of PA 6 are developing a strategic basis for improvement of ecosystem
Nationally designated terrestrial protected areas in Europe	Slightly positive impact	Pa 6 Action 1 promotes transnational cooperation and therefore provides a strategic basis for an extension of a protected area

Natura 2000 sites designated under the Habitats and Birds Directives	Slightly positive impact	Natura 2000 site-specific management plans will help ensure consistency and sustainability in implementation of conservation measures and contribute to better nature protection of these areas
Ecological footprint of European countries	low	Indirectly, through co-operation with other PAs and establishment of healthy ecosystems
Public awareness of biodiversity in Europe	Slightly positive impact	Several actions that provide basis for raising public awareness of biodiversity will be implemented
Terrestrial protected area coverage	Slightly positive impact	Transnational cooperation and harmonisation of the strategic planning documents could help to expand the terrestrial protected area
Marine protected area coverage	No impact	Marine area is not a part of actions in the framework of PA 6
Common bird index by type of species	medium	By improvement of habitats, creation of conditions for increase
Grassland butterfly index	medium	By improvement of habitats to reversing the decline in pollinators
Area under organic farming	Slightly positive impact	Research on production potential of agriculture areas could possibly lead to recognition of importance of organic farming, and therefore, expand the area under organic farming

Source: Authors

Actions and activities in the framework of the PA 6 do not affect all elements of the biodiversity. The EUSDR 2020 Action Plan provides strategic framework for projects and activities that should actually make a difference.

## 9.2 POSITIVE SCENARIO

The second scenario developed, the positive scenario, is based on the improvement of the PA 6 activities in a way that they are more efficient and contribute to achieving results at a faster pace. The positive scenario assumes that, in addition to achieving milestones, some of additional impacts will be achieved.

However, there is a room for improvement. With the new Regulation on restoration of nature countries will aim to restore significant areas of degraded ecosystems, support recovery of conservation trends for habitats and species by 2030 (2050) and ensure restoration of at least 25,000 km of free-flowing rivers (by removing obsolete barriers and restoring floodplains and wetlands) to achieve natural functions of rivers by removing or adjusting barriers to migrating fish, and improving the flow of water and sediments. The mentioned objectives provide concrete framework for PA 6 Activities to build upon national targets once establish by countries especially where transnational cooperation is needed.

Increase in PA coverage primarily requires national efforts, while the EUSDR PA focuses on solutions that require trans-national approach. Thus, while it contributes to biodiversity targets, the EUSDR efforts are limited/pending on national designations but can contribute to the management effectiveness.

The summary of positive scenario is presented in Table 9.

**Table 9. Summary of positive scenario**

Indicator	Impact	Explanation
Abundance and distribution of selected European species	Medium-high	By implementing activities that substantially reduce the negative impacts on species and habitats, positive impact on sensitive species, such as birds and butterflies can be achieved and intensify impacts compared to baseline (from medium to medium-high)
Species of European interest	Slightly positive impact	The increasing impact on this goal would require significant effort, as the progress planned in baseline scenario is already relevant.
Ecosystem coverage	Positive impact	With the new Regulation on restoration of nature countries will aim to restore significant areas of degraded ecosystems, support recovery of conservation trends for habitats and species by 2030 (2050), PA 6 Activities can build upon national targets, once establish

		by countries, especially where transnational cooperation is needed.
Nationally designated terrestrial protected areas in Europe	Positive impact	Adding ambition to the terrestrial protection and concrete targets could improve impact from slightly positive to positive impact.
Natura 2000 sites designated under the Habitats and Birds Directives	Positive impact	More activates on effective management of Natura 2000 improve impact from slightly positive to positive impact.
Agriculture: area under management practices potentially supporting biodiversity	Positive impact	Increase from slightly positive to positive impact due to implementation of measures included in the EU Biodiversity Strategy
Ecological footprint of European countries	Positive impact	Increase from slightly positive to positive impact due to implementation of activities that contribute to commitments from the EU Biodiversity Strategy for 2030”
Public awareness of biodiversity in Europe	Positive impact	Co-operation among different areas provides for improvement from slightly positive to positive impact; this includes integration of environmental agendas into mainstream education and sharing knowledge to increase respect for nature in the public and decision-making processes and Supporting equality and an inclusive approach.
Common bird index by type of species	Positive impact	Improvement from low to positive impact, by implementing measures related to ensuring that habitats and species show no deterioration in conservation trends and status in Danube region
Grassland butterfly index	Positive impact	Improvement from low by implementing measures related to reversing the decline in



		pollinators which improve the grassland butterfly index in Danube region
Area under organic farming	Positive impact	Improvement from slightly positive by implementing measures related to the expansion of area under organic farming directly affect this indicator positively

Scenario analysis show that using guidance and measures identified as relevant under the EU biodiversity strategy can support implementation of the EUSDR and lead to improved biodiversity indicators. Also, it can contribute to increased coherence between objectives and indicators.

## 10 GOOD PRACTICE EXAMPLES

In the framework of the analysis of biodiversity in the European Union Strategy for the Danube Region, the good practice examples have been identified. The criteria for selecting the project as a good practice example were their contribution to preservation and restoration of biodiversity, but also their involvement of different stakeholders, introduction of innovations and their involvement of two or more countries. Additionally, it was important that the projects are interdisciplinary, i.e., that they are related to other sectors and/or other PAs.

Identified good practice examples include the projects implemented within Danube Transnational Programme (DTP), as well as the projects implemented under other EU programs which contribute to the EUSDR goal. The analysis included projects financed under Interreg Danube Transnational Program, Interreg Central Europe, Interreg Cross-border Cooperation Programme Slovakia – Hungary, Operational Programme LIFE and Operational Programme Horizon 2020.

**Interreg Danube Transnational Programme** is a financing instrument of the European Territorial Cooperation (ETC), better known as Interreg. ETC is one of the goals of the European Union cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States. The Danube Transnational Programme (DTP) promotes economic, social and territorial cohesion in the Danube Region through policy integration in selected fields.

Biodiversity related projects financed under Interreg Danube Transnational Programme are mostly implemented under priority *Environment and culture responsible Danube Region*. The review of the operational programs relevant for Danube region countries contributing to the PA 6 objectives identified 30 projects related to biodiversity. Those projects have been financed under the Interreg Danube Transnational Programme with the sum of EUR 69,622,418.

The projects identified here are either completed or in implementation, which comply with scope and criteria for label of a Danube Strategy Flagship (Guidance Paper, 2022) These criteria are as follows:

- Connection to the EUSDR: Links or contributes to one or more targets and Actions of the respective Priority Area as described in the EUSDR Action Plan
- Macro-regional dimension: Involves at least two EUSDR participating states and has a high macro-regional impact (effect) in at least two participating states from the Danube Region
- Multi-level governance approach: Involves different actors (e.g., policy makers, policy implementers, research institutions, civil society, etc.) and/or several levels (supranational, national, regional, local) in the development/consultation and/or implementation process.

The project financed under the Interreg Danube Transnational Programme that is identified as a good practice example is the project **“DANUBEparksCONNECTED Bridging the Danube Protected Areas towards a Danube Habitat Corridor.”** The project was implemented in the 2017-2019 period with overall budget of EUR 3,085,412.49 (ERDF Contribution: 2,487,762.45, IPA Contribution: 134,838.13). Its specific objective was to foster the restoration and management of ecological corridors, which is also fully in line with revised EUSDR action plan. It included partners from Germany and Austria and involved multi-level governance: partners included national park (Donau-Auen National Park), municipality (Wachau), city (Ingolstadt), district (Passau), and courthouse (Neuburg-Schrobenhausen). It offered Danube-wide strategies to restore and maintain connectivity in all habitat elements: water, land, air, fire-communication.

The good practice examples enable implementation of the DTP capitalisation strategy. Besides the DANUBE parks CONNECTED, the good practice examples seeking to preserve and valorise from different aspects this richness of the Danube region nature are elaborated in Table 11.

**Table 10. Good practice examples**

Project	Targets/actions	Macro-regional aspect	Multi-level governance approach
DANUBE parks CONNECTED Bridging the Danube Protected Areas towards a Danube Habitat Corridor	Foster the restoration and management of ecological corridors, 4 habitat elements	Austria, Germany, Slovakia, Hungary, Bulgaria, Romania, Croatia, Serbia, Moldova, France, Ukraine	Included national park, municipality, city district, courthouse
Danube Geotour	Ecological corridor, valorisation of geo-heritage for sustainable and innovative tourism development of Danube Geoparks	Slovenia, Austria, Croatia, Hungary, Romania, Slovakia, Czech Republic, Serbia	Universities, nature parks, national parks, geopark, tourism
Eco karst	Protection and sustainable development of karst bio-regions in the Danube region based on their valued Ecosystem service; sustainable management and awareness of the vulnerability of karst ecosystems; increase pro-biodiversity business (PBB) opportunities.	Slovenia, Croatia, Austria, Germany, Hungary, Romania, Montenegro, Bosnia and Herzegovina, Serbia	National parks, regional parks, academic institutions, county council, NGOs, ministry
Lena	Local Economy and Nature Conservation in the Danube Region is connecting nature and people for well-being and prosperity	Bulgaria, Croatia, Hungary, Germany, Romania, Serbia and Slovenia	Experts in local economic development, experts in nature protection and green solutions, local authorities and protected area managers
Coop MDD	Harmonisation of Protected Areas management and development of a joint Management Programme for the future 5-country UNESCO Biosphere Reserve "Mura-Drava-Danube" (TBR MDD).	Austria, Slovenia, Croatia, Hungary and Serbia	Municipality, national park, public institutions, WWF for Nature, ministries
Amazon of Europe bike trail	Establish internationally recognized and sustainable flagship Cycling Tourism Product in the future 5-country UNESCO	Austria, Slovenia, Croatia, Hungary and Serbia	Cities, counties, entrepreneurs' centre, ministries, companies, WWF

	Biosphere Reserve Mura-Drava-Danube (TBR MDD).		
EcoVeloTour	Integration of the ecosystem service framework into ecotourism planning	Hungary, Germany, Bulgaria, Slovakia, Austria, Serbia, Romania	Ministries, marketing agency, fund, tourism association, university, city
ConnectGreen	Restoring and managing ecological corridors in mountains as the green infrastructure in the Danube basin	Romania, Austria, Czech Republic, Hungary	University, WWF, environment agency, ministries, regional parks
URBforDan	Management and Utilization of Urban Forests as Natural Heritage in Danube Cities	Slovenia, Hungary, Austria, Croatia, Romania, Serbia	Cities, municipalities, companies (private and state)
D2C	Supporting Danube Region's ecological Connectivity by linking Natura 2000 areas along the Green Belt	Czech Republic, Austria, Hungary, Romania, Croatia, Serbia, Slovakia, Germany	Foundation, university, environment agency, national parks, public institutions, ministries
Measures	Managing and restoring aquatic ecological corridors for migratory fish species in the Danube river basin: mapping and identifying of key habitats by developing and testing a methodology for migratory fish habitat mapping; developing a harmonized strategy for restoring green corridors and supporting implementation in future management plans; restocking of two native species to conserve their genetic pool in Hungary and Romania, establishment of a network for concerted repopulation of the target species and elaboration of a manual for the operation of brood stock facilities that will provide the offspring needed for the repopulation; the implementation of the MEASURES Information System that facilitates the access of experts, decision-makers and the general public to the relevant information available.	Austria, Slovenia, Bulgaria, Romania, Slovakia, Hungary, Serbia, Germany	Universities, ministries, WWF, national institutes
REFOCuS	Resilient riparian forests as ecological corridors in the	Slovenia, Austria,	Academic research institutes, innovation



	Mura-Drava-Danube Biosphere Reserve	Hungary, Croatia, Serbia	centre, ministry, state forests
Sava TIES	Preserving the Sava River Basin Habitats through Transnational Management of Invasive Alien Species; find an effective solution for permanent eradication of IAS, reduce habitat fragmentation, improve the connectivity of the transnational ecological corridor.	Germany, Croatia, BiH, Slovenia, Serbia, Austria	Nature park, regional park, environmental agency, NGO, chamber of agriculture and forestry

Projects financed from Interreg CENTRAL EUROPE supports improving capacities for regional development in innovation, carbon dioxide reduction, the protection of natural and cultural resources as well as transport and mobility. Interreg CENTRAL EUROPE is a European Union funding programme that encourages transnational cooperation beyond borders in central Europe. With a budget of EUR 246 million from the European Regional Development Fund (ERDF), Interreg CENTRAL EUROPE supports partnerships made up of public and private institutions from nine countries: Austria, Croatia, Czech Republic, Germany, Hungary, Italy, Poland, Slovakia and Slovenia.

Biodiversity related projects financed under Interreg CENTRAL EUROPE are mostly implemented under the topic *Natural and cultural resource*. The total of 10 projects related to biodiversity have been financed under the Interreg CENTRAL EUROPE with the total budget of EUR 23,735,617.11. The Interreg CENTRAL EUROPE project identified as a good practice example is the 3LYNX project dealing with the conservation of lynx. The project was identified as a good practice example because it deals with endangered species, but also encourages involvement of different stakeholders, such as hunters and foresters. The project is presented in the following box.

The project “**3LYNX**” had three main aims – lynx population monitoring, preparation of a lynx conservation strategy at a population level, and cooperation with stakeholders (especially hunters, foresters and landowners, who often have direct contact with lynx). Conservation strategy planning has defined phases that consist of gathering data about the species, analysing the threats, preparing an action plan, and then implementing this plan and monitoring its efficiency. Therefore, the project planned to establish regular monitoring schemes with processes to share data between states, which is necessary for evaluating population-level conservation measures. Project partners engaged in broad discussion with stakeholders, which was vital for a viable conservation strategy. In the end, the partners ensured governmental commitment to the strategy, which helps in long-term enforcement of the issue. The project started on July 1, 2017 and ended on September 30, 2020. The lead partner of the project was Research Institute of Wildlife Ecology, University of Veterinary Medicine, Vienna. The total budget of the project was EUR 2,320,000.

One project that has been identified as relevant under the programme Interreg V-A Slovakia-Hungary is “Enhancing promotion & protection of biodiversity to preserve natural heritage in the Slovak-Hungarian Cross-border region (Ecoregion SKHU)” with the total budget of EUR 1,950,000.00. The project started

on November 1, 2020 and will last for 2 years. The lead partner at the project is Bratislava self-governing region (SK). The project summary is presented in the following box.

The INTERREG “**Enhancing promotion and protection of biodiversity to preserve natural heritage in the Slovak-Hungarian Cross-border Region**” (Ecoregion SKHU) project is focused on the joint development of the natural heritage of the Dunajské luhy / Dunamenti landscape protection area and the Szigetközi Nature Park. The natural heritage in this area has significant potential for the development and improvement of existing ecotourism services through coordinated raising of environmental awareness of the population and the development of ecotourism and ecological-educational infrastructure. The aim of the project is to develop and improve existing ecotourism services by increasing environmental awareness of the public, building eco-touristic infrastructure, providing environmental education, and improving public-private cooperation. The project started on November 1, 2020 and it will last for 24 months. The lead partner of the project is Bratislava self-governing region (SK). The total budget of the project is EUR 1,950,000.00, with 1,657,500.00 co-financed from ERDF.

The **LIFE programme** is the EU’s funding instrument for the environment and climate action created in 1992. The 2014-2020 funding period had a budget of EUR 3.4 billion. The LIFE programme is divided into two sub-programmes, one for environment (representing 75% of the overall financial envelope) and one for climate action (representing 25% of the financial envelope).

Projects related to biodiversity are mostly implemented under the sub-programme *Environment protection*. The total of 32 projects have been identified as relevant to biodiversity with the total budget of EUR 153,857,328. The ongoing project “Danube Wild Islands”, financed under LIFE Programme, is fully in line with the criteria for Danube flagship. The project is presented in the following box.

As a follow-up of the DANUBEparksCONNECTED project (funded by the Interreg Danube Transnational Programme), DANUBEPARKS and partners representing the waterway, hydropower and forestry sector launched the LIFE WILD island project to protect and revitalize the last near-natural “wild” islands on the Danube. The project is an amazing example of cross-sector trans-border cooperation, involving 15 partners from 8 countries united to restore and conserve a total of 34 islands all the way from Germany to Romania. The targets are:

- To strengthen ecological connectivity and preserve the natural wilderness in the heart of Europe, improving the coherence of the NATURA 2000 network;
- To restore natural processes, promote river dynamics and intact sediment regime;
- To demonstrate good practice for cross-sector and cross-border cooperation;
- To locate WILDIslands and identify commitments with relevant policy drivers, sectors and land managers to preserve their natural heritage;
- To improve the conservation status of 1,267 ha of softwood riparian forests (EU priority habitat type 91E0\*): Alluvial forests with *Alnus glutinosa* (black alder) and *Fraxinus excelsior* (white ash), restoring and maintaining a total of 34 islands and 39 SCIs along the Danube;

**Budget:** € 14,222,637 (65% EU co-funding)

**Duration:** 2021-2027

**Horizon 2020** is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. Seen as a means to drive economic growth and create jobs, Horizon 2020 has the political backing of Europe's leaders and the Members of the European Parliament. They agreed that research is an investment in our future and so put it at the heart of the EU's blueprint for smart, sustainable and inclusive growth and jobs. By coupling research and innovation, Horizon 2020 is helping to achieve this with its emphasis on excellent science, industrial leadership and tackling societal challenges. The goal is to ensure Europe produces world-class science, removes barriers to innovation and makes it easier for the public and private sectors to work together in delivering innovation.

Projects related to biodiversity are mostly implemented under the Priority Axis SOCIETAL CHALLENGES – Climate action, Environment, Resource Efficiency and Raw Materials. The total of 11 projects have been identified with the total value of EUR 239,710,950.79.

The project implemented under Horizon 2020 AND identified as a good practice example is "Consolidating the European Research Area on biodiversity and ecosystem services". The project was identified as a good practice example because of its interdisciplinarity, since it connects biodiversity and research, as well as the number of countries and stakeholders involved. The project is presented in the following box.

By networking 32 funding agencies from 18 countries, "**Consolidating the European Research Area on biodiversity and ecosystem services**" BiodivERsA3 aimed to strengthen the European Research Area (ERA) on biodiversity. Building on the previous experiences of the projects BiodivERsA1&2 and NetBiome, BiodivERsA3 promoted and supported coordinated pan-European research on biodiversity and ecosystem services. It strengthened research and research programmes coordination with the ultimate aim to provide policy makers and other stakeholders with adequate knowledge, tools and practical solutions to address biodiversity and ecosystem degradation. The project started on February 1, 2015 and ended on April 30, 2022. The lead partner of the project was Foundation for Research on Biodiversity (FR). The total budget of the project was EUR 38,974,332.66 with the EU contribution of EUR 12,861,529.77.

DTP projects have proved to be examples of good practice and also served as inspiration for follow-up projects financed from other EU operational programs.

## 11 CONCLUSIONS AND RECOMMENDATIONS

The main strategic documents related to biodiversity at the EU level, in addition to the EU Biodiversity Strategy for 2030 and European Green Deal are “Farm to Fork” Strategy, Zero Pollution Action Plan, EU Soil Strategy for 2030, and EU Forest strategy for 2030. The environmental sustainability criteria and application of the do not significant harm principle support mainstreaming biodiversity into projects and programs financed from the EU.

In the European Union Strategy for the Danube Region (EUSDR) biodiversity is part of the Pillar 2: Protecting the Environment, especially Priority Area 6: Biodiversity and landscapes, quality of air and soils.

While the EUSDR 2020 Action Plan was adopted before relevant strategic EU documents for the period until 2030 and beyond, it significantly contributes to their goals. Each action of the EUSDR contributes to the EU Biodiversity Strategy for 2030. However, it does not specify its contribution to some of the indicators defined at the EU level (e.g., “Plant 3 billion trees for biodiversity, according to ecological principles”).

As PA 6 deals with biodiversity, the activities in other PAs generally do not explicitly include biodiversity targets. Due the impact other PAs have on biodiversity, such as transport and mobility, waters, environmental risks goals related to biodiversity need to be achieved in cooperation with other PAs. Such cooperation has positive impact on horizontal policies, primarily those related to environment, including climate change, and various topics related to sustainable development.

In addition to priority projects launched within the EUSDR, projects launched within the EU programmes (such as LIFE) also contribute to the objectives of the EUSDR. Both types of projects can facilitate achieving the goals. Thus, the exchange of ideas and good practices can facilitate development of follow-up. The number and quality of implemented projects dealing with biodiversity implemented as DTP projects and under other funding schemes show that importance of biodiversity is highly recognised in the region. In addition to the DTP projects, good practice examples funded from other sources were identified based on the same criteria: they are contributing to preservation and restoration of biodiversity, but also involve different stakeholders, introduce innovations and involve more countries. Furthermore, it is important that the projects are interdisciplinary in terms that they are related to other sectors and/or other PAs. The total of 86 projects related to preservation and restoration of biodiversity have been identified and five are presented as good practice examples.

Actions and activities in the framework of PA 6 do not affect all elements of biodiversity. The EUSDR 2020 Action Plan provides the framework for implementation of strategic projects, in whose design there is certain flexibility. This is the main difference between 2010 and 2020 Action Plans: while both are trying to achieve the same objectives, activities in 2020 Action Plan are more flexible. For example, some of the activities in the framework of PA 6 are:

- to strengthen cooperation and knowledge transfer between scientific community and different stakeholders,
- identify further endangered habitats and endangered umbrella species of the Danube region
- assess the need for development and/or implementation of their conservation action plans and/or management plans,

- collect and analyse data about alien species in the Danube Region,
- prepare risk management plans in the case of environmental accidents.

The 2020 Action Plan enables some flexibility in designing actions for the preservation and restoration of biodiversity. As biodiversity and nature are amongst the most important resources in the Danube region, the balance between clear priorities and flexibility are key of the successful implementation. Based on the above, the following recommendations are formulated:

- Focus the activities within the Action Plan on most pressing challenges;
- Provide clear priorities while enabling flexibility in actions and activities within the Action Plan;
- Include biodiversity preservation, in addition to the work done under PA 6, as a horizontal measure in all priority axes and related activities;
- Promote replication of the biodiversity-related implemented projects for preparation and implementation of new projects;
- Promote replication of the biodiversity-related projects implemented in the previous period (e.g., the projects identified as good practice examples, presented in Chapter 10)
- Include innovations in sustainable use of nature and biodiversity into PAs;
- Develop common indicators that are committed to knowledge and innovation;
- Keep financing from different transnational sources that are adequate for Task force projects and work;
- Support and promote transferring activities from the EUSDR PA 6 into mainstream national programs, as this will lead to the approval of projects contributing to the achievement of the objectives of PA 6 and the EUSDR;
- Improve the visibility of the activities and their results.

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