

Elaboration of Strategic Environmental Assessment of the  
Interreg Programme for the programming period of 2021–  
2027 (Version 2.0), concerning the programming area of  
Hungary-Croatia

Environmental Report

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Programme between Hungary and Croatia 2021-2027

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# 1 Outline of the contents

## 1.1 Scoping approach

Cross Border Cooperation (CBC) is a key element of the EU policy towards its neighbours. It supports sustainable development along the EU's external borders, helps reducing differences in living standards and addressing common challenges across these borders. CBC promotes cooperation between EU countries and neighbourhood countries sharing a land border or sea crossing.



Figure 1. The analysed territory of the VI-A Hungary-Croatia Programme 2021-2027

Source: [Hungary-Croatia Cross-border Co-operation Programme \(huhr-cbc.com\)](http://huhr-cbc.com)

The VI-A Hungary-Croatia Programme 2021-2027 is a cross-border programme between two EU Member State countries in the middle of Europe, along the north-eastern border of Croatia and the south-western border of Hungary. The cooperation area covers a territory of 31 085 km<sup>2</sup>, including 11 counties providing homes for over 1.99 million citizens.

## 1.2 Development process of the programme document

A programme documentation template has been provided by the Interreg Regulation, that defines the content of Interreg Programmes. It consists of the prescribed main chapters and necessary appendices.

Chapter 1 provides the main development challenges and untapped potential in a form of a Situation analysis. Based on the Situation analysis a SWOT analysis has been prepared for the programme area. To conclude the findings of Chapter 1, policy objectives, specific objectives and Interreg specific objectives are recommended to address the missing links in the CBC infrastructure.

Chapter 2 contains the agreed policy and specific objectives approved by the stakeholders and rationale behind, serving as intervention logic for future calls. Chapter 2 is responsible for defining the priorities, policy objectives, specific objectives, potential beneficiaries, type of actions, target groups and indicators needed for programme implementation monitoring and evaluation. This is the backbone of a programme concept.

Chapter 3 provides the financing plan of the programme distributed amongst the years of implementation.

Chapter 4 presents the actions taken to involve the relevant stakeholders in the preparation of the programme and proposes the role of partners in the programme implementation, monitoring and evaluation.

Chapter 5 presents the approach to communication and visibility of the programme.

Chapter 6 provides indication of support to small-scale projects, including small projects within small project funds.

Chapter 7 provides implementation provisions.

Chapter 8 defines the financing structure of the EU contribution within the programme, whether it will be based on SCOs, lump sums and flat rates or real cost options.

Draft of the VI-A Hungary-Croatia Programme 2021-2027 was prepared in 2021-2022 and included four priorities: *Competitive border region*; *Greener and low-carbon border region*; *Inclusive border region* and *Cooperating border region* with accompanying selected Policy objectives (PO) / Interreg specific objectives (IS)O) and specific objectives (SO). Strategic environmental assessment was conducted based on document *Elaboration of Strategic Environmental Assessment of the Interreg Programme for the programming period of 2021–2027, concerning the programming area of Hungary-Croatia (Environmental report)* prepared by EX ANTE Consulting Ltd. Final version of the Environmental report (February 2023) was approved in the 6<sup>th</sup> written procedure of the Programming Committee.

In November 2023 there have been changes in Hungary-Croatia Programme management. The Croatian Ministry of Regional Development and EU Funds took over the managing authority role of the Hungary-Croatia Programme following the Hungarian Ministry of Foreign Affairs and Trade.

The previously prepared VI-A Hungary-Croatia Programme 2021-2027 was extended with a new priority, *Connected border region* with accompanying policy objective PO 3 *a more connected Europe by enhancing mobility* and specific objective SO (ii) *developing and enhancing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility*. Among other strategic projects, three projects have been listed within Annex 3 of the programme under the new PO 3 (ii): (1) Preparing and building the missing road link between Sároka and Kneževó, (2) Preparing and building the missing road link between Zákány - Gotalovo and (3) Preparing the project documentation for the bridge between Kotoriba and Murakersztúr (Mura Bridge).

As these strategic projects have infrastructure components, current Environmental report devotes special attention to the potential environmental effects of their implementation.

Other priorities, selected policy objectives / Interreg specific objectives and specific objectives have not changed compared to the previous draft of the Hungary-Croatia Programme.

### 1.3 List of sources (relevant legislative acts, data resources used during the draft of the Environmental report)

During the development of the programme documents and the environmental assessment, a number of major international, EU and national level sources (legislations, development strategies, etc.) and databases were used, such as:

List of relevant legislative acts and documents	
Hungary	Hungary's River Basin Management Plan <a href="#">2021</a> ; National Transport Infrastructure Development Strategy of Hungary; National Energy and Climate Plan of Hungary; National Clean Development Strategy of Hungary (2020-2050); National Development 2030 - National Development and Territorial Development Concept of Hungary; National Spatial Planning Plan (OTrT) and Decree No 9/2019. (VI. 14.) of the Minister in charge of the Prime Minister's Office; National Forest Strategy (2016-2030); National Waste Management Plan (2021-2027); Sludge Treatment and Recovery Strategy (2014-2023); Municipal Decree No. 6/2020 (III.16.) of the President of the Somogy County General Assembly on the Spatial Planning Plan of Somogy County; National Tourism Development Strategy 2030 of Hungary; National Water Strategy (Kvassay Jenő Plan) of Hungary; "Healthy Hungary 2021-2027" – Health Sector Strategy (2021-2027); National Climate Change Strategy (2018-2030); National Framework Strategy on Sustainable Development of Hungary (2012-2024); National Nature Protection Plan V. (2021-2026); National Strategy for the Conservation of Biodiversity (2021-2030); National Landscape Strategy of Hungary (2017-2026);

	<p>Integrated territorial development programme of Baranya County 2021-2027 ; Territorial development concept and programme of Baranya County 2030; Integrated territorial development programme of Somogy County 2021-2027; Territorial development concept and programme of Somogy County 2030; Integrated territorial development programme of Zala County 2021-2027 ; Territorial development concept and programme of Zala County 2030</p>
Croatia	<p>National development strategy of the Republic of Croatia until 2030; Spatial development strategy of the Republic of Croatia; Strategy and Action plan for nature protection of the Republic of Croatia for period 2017-2025; Climate change adaptation strategy of the Republic of Croatia for the period up to 2040 with a view to 2070; Low carbon development strategy of the Republic of Croatia until 2030 with a view to 2050; Agriculture strategy until 2030; Water management strategy; River Basin Management till 2027 ; Multi- annual Programme of Constructing Water Regulation and Protection Facilities and Amelioration Facilities; Multi-annual Programme for the Construction of Municipal Water Structures for the Period up to 2030; Air pollution control programme for the period from 2020 to 2029; Waste management plan of the Republic of Croatia for period 2023-2028; Integrated National Energy and Climate Plan for the Republic of Croatia for the period from 2021 to 2030; Energy development strategy of the Republic of Croatia until 2030 with a view to 2050; Programme for the development of green infrastructure in urban areas for the period 2021-2030; Transport Development Strategy of the Republic of Croatia for the period from 2017 to 2030; Plan for the development of the geothermal potential of the Republic of Croatia until 2030; Sustainable tourism development strategy until 2030, National plan for sustainable tourism until 2027 and an Action plan for the implementation of the National plan for sustainable tourism until 2025; Development plan of Međimurska county till 2027 ( ; Spatial plan of Međimurska county; Development plan of Varaždinska county for the period 2021-2027; Spatial plan of Varaždinska county; Development plan of Koprivničko-križevačka county for the period 2021-2027; Spatial plan of Koprivničko-križevačka county; Development plan of Bjelovarsko-bilogorska county for the period 2022-2027 ; Spatial plan of Bjelovarsko-bilogorska county; Development plan of Virovitičko-podravka county for the period 2021-2027; Spatial plan of Virovitičko-podravka county; Development plan of Požeško-slavonska county for the period 2021-2027; Spatial plan of Požeško-slavonska county; Development plan of Osiječko-baranjska county for the period 2021-2027; Spatial plan of Osiječko-baranjska county; Development plan of Vukovarsko-srijemska county for the period 2021-2027; Spatial plan of Vukovarsko-srijemska county</p>
Other	<p>United Nations 2030 Agenda for Sustainable Development (A/RES/70/1); United Nations Framework Convention on Climate Change (UNFCCC, 1992); European Convention on the Protection of the Archaeological Heritage 1992 (Revised); Paris Agreement (2015); Second draft of the VI-A Hungary-Croatia Programme 2021-2027; The European Commission's orientation paper on INTERREG NEXT Programmes and its Annex III; Joint paper on Interreg NEXT Strategic Programming 2021-2027; Annex 2 to the Regulation of the European Parliament and of the Council on the ERDF and CF (proposal); Indicator Fiches of additional common output and result indicators for the ERDF for Interreg; EU Green Deal; European Climate Law; EU Strategy on Adaptation to Climate Change; "Fit for 55" package; EU Water Framework Directive;</p>



	Directive 2007/60/EC on the assessment and management of flood risks; EU Biodiversity Strategy for 2030 – Bringing nature back into our lives biodiversity Strategy (until 2030); European Landscape Convention; EU Strategy for Energy System Integration; EU Hydrogen Strategy; European Union Strategy for the Danube Region; EU Invasive Alien Species (IAS) Regulation
List of data resources	
Hungary	Hungarian Central Statistical Office (ksh.hu); TEIR – Official database of the Hungarian Central Statistical Office (TelR)
Croatia	Croatian Bureau of Statistics ( <a href="https://dzs.gov.hr/">https://dzs.gov.hr/</a> ); Croatian environmental protection information system and nature protection information system ( <a href="http://www.haop.hr/hr">http://www.haop.hr/hr</a> , <a href="https://envi.azo.hr/">https://envi.azo.hr/</a> , <a href="https://www.biportal.hr/gis/">https://www.biportal.hr/gis/</a> ; <a href="https://mingor.gov.hr/">https://mingor.gov.hr/</a> and other sources)
Other	Eurostat (ec.europa.eu/eurostat)

## 2 Observation of potential alternatives

As the VI-A Hungary-Croatia Programme 2021-2027 presents framework for cross border cooperation, the observation of alternatives shall be narrowed down to a no-project scenario and one that includes the implementation of the Hungary-Croatia Programme and observes its possible positive and negative environmental effects.

The specific objective SO (iii) *enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments* under the policy objective PO 1 targeting a smarter Europe was selected by the Hungary-Croatia Programme. The priority identified under SO (iii) is aimed at building a competitive border region through fostering the business and innovative cross-border cooperation. As formulated in the Hungary-Croatia Programme document, one of the main reasons for the poor and stagnating economic performance typical in the Croatian-Hungarian border region is the lack of cross-border business cooperation and joint R&D and innovation activities. The factual economic data for the programme area indeed justify the selection of SO (iii) *enhancing sustainable growth and competitiveness of SMEs*, and through the implementation of the planned actions under this SO, the SMEs will be given the chance to increase their presence on each other and foreign markets, increase their competitiveness and ultimately improve the labour market situation in the region.

Further aspects of creating a competitive border region are the enhancement of digitisation SO (ii) *improving access to inclusive and quality services in education*) and the fostering of digital connectivity (SO (v)), which specific objectives were not selected by the Hungary-Croatia Programme. Digitalisation was only mentioned among some of the planned activities under the five programme priorities.

It is common knowledge that digitalisation might simplify the cooperation between local citizens, companies and public authorities, therefore the Hungary-Croatia Programme should place greater emphasis on the digital transformation and the elimination of the digital divide in the Hungary-Croatia Programme area, as well as encourage local SMEs to implement advanced digital solutions a more sustainable social and economic development in the region. It also should be kept in mind that the EU supports the creation of climate-resilient and sustainable regions, the key elements of which are digitalisation and enhancement of technology innovation.

Under the PO 2, aimed at a greener, low-carbon border region, SOs (i) *promoting energy efficiency and reducing greenhouse gas emissions* and (iv) *promoting climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches* were selected. In the framework of the SOs, in line with the EU decarbonisation goals the Hungary-Croatia Programme will support initiatives promoting energy consciousness to ensure clean and fair energy transition in the area. Since the programme area is characterised by high potential for the use of solar and geothermal energy, the Hungary-Croatia Programme intends to increase the use of renewable

energy sources as well. Both SOs are correspondent to most of the remaining SOs under PO 2 to some extent, however, developments and investments related to increasing the economic relevance and competitiveness of SMEs formulated in SO (iii) *enhancing sustainable growth and competitiveness of SMEs* under PO 1 shall be achieved in a sustainable, fair, resource-efficient and environmentally sound manner, while bearing in mind the potential cross-border effects of investments and not impede the fulfilment of the PO 2 specific objectives.

Agriculture is a prominent sector in the programme area with a performance above the national averages. Relying on the available resources, the favourable ecological and weather conditions, the professional experience and its R&D&I potential, the sector holds many opportunities for further development. Therefore, we recommend SMEs in the primary sector as key target groups for initiatives realised under Priority 1 and 2. It is important to note that climate change is adversely affecting agriculture, forestry and fishing sectors as well, therefore, in addition to the development, great emphasis should be also placed on preparedness and the elaboration of environmental adaptation strategies (under SO (iv) climate change adaptation, disaster risk prevention, resilience).

Draft of the VI-A Hungary-Croatia Programme 2021-2027 prepared in 2021-2022 did not include policy objective (PO) 3 *more connected Europe*. In the pre-Schengen period, the limited number of border-crossing points between Hungary and Croatia presented a significant obstacle to economic and social integration of the CBC area. Croatia's access to Schengen on the January 1<sup>st</sup> 2023 opened up new opportunities in cross border transport so PO 3 is included in the Hungary-Croatia Programme, focusing on facilitating a more connected border region. The inclusion of SO (ii) in the programme can be justified by the border area's unfavourable infrastructural background: the average distance between road border crossings is 72 km. Enhancing the infrastructure and creating new possibilities to cross the border will decrease the travel time between the two countries contributing to a more connected Europe in social and economic terms alike.

Similarly to the priority objective 2, the Hungary-Croatia Programme also selected two SOs (vi) *culture and sustainable tourism* and (ii), *inclusive and quality services in education* under the PO 4 aimed at a more social and inclusive Europe. In order to create an inclusive border region, the Hungary-Croatia Programme will support projects targeting the development of sustainable nature and culture-oriented tourism under SO (vi) enhancing the role of culture and sustainable tourism and joint educational initiatives under SO (ii).

Tourism, especially after the downturn caused by the COVID-19 virus, will be the main driving force in the region, therefore its development has rightly become one of the main development areas of the Hungary-Croatia Programme. The programme area, due to its natural and cultural values, acquired considerable experience in cross-border tourism cooperation. The long-standing

viticultural collaboration in the region can serve as a good basis for deepening further cross-border tourism cooperation. The region holds particular potential for the integration of cross-border services and inclusive territorial development, which can be achieved through future service and infrastructure developments. The integrated development of tourism, sport and culture leads to a predictable improvement in the labour market situation, the realisation of which is in line with the non-selected SO (i) as well. The Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve as a tourist attraction offers great opportunities to enhance green tourism in the region. However, the promotion of close-to-nature tourism holds the high-level risk of over-utilisation and -exploitation of the natural environment. Thus, in line with PO 2 *a greener, low-carbon Europe*, it is recommended that a detailed eligibility criteria regarding natural asset protection be included in the calls for proposals.

The SO (ii) *improving access to inclusive and quality services in education* selected under PO 4 places great emphasis on educational development and the adaptation to the digitalisation education trends caused by COVID-19. Compared to the respective EU average, the programme area is characterised by low labour productivity, and the main reason for the lag is the disproportion between the labour market needs and the supply of the education system in the border region. In addition to the actions outlined by the Hungary-Croatia Programme, particular attention should also be paid on digitalisation and the improvement of network coverage, as well as to access to inclusive and quality education services to transform the programme area in order to achieve a more competitive and sustainable economic region.

During the programming process, the partners aimed to concentrate the financial resources of the Hungary-Croatia Programme. Policy objectives PO 5 supporting sustainable and integrated urban and rural development fell out of the scope of the Hungary-Croatia Programme. Coordinated measures in these themes would be highly beneficial rather on the long run, and it is questionable how other SOs - including ISO1 b) - can contribute to this challenge.

As the Hungary-Croatia Programme places a strong emphasis on protecting the environment and does not ignore the EU objectives related to sustainability and decarbonisation, the exclusion of the PO 5 is considered justified.

Under the Interreg-specific objective ISO 1 targeting a better cooperation governance two SOs (b) *enhance efficient public administration* and (c) *building up mutual trust* were selected. The aim of these SOs is to make the territorial cooperation functional at all levels, the programme strategies feasible and the sustainability permanent. The priority of fostering governmental cooperation under the ISO 1 (b) aimed at the enhancement of efficient public administration is key, as in addition to the thematic SOs, there is a need to focus on ensuring the institutional background cooperation as well. Initiatives under the ISO (b) *enhancing efficient public administration*, by overcoming obstacles to cooperation will allow for a deepening of

stakeholders' interactions, as well as the expansion of capacities in themes not covered by other SOs. The ISO (c) aiming to build up mutual trust, in particular by encouraging people-to-people actions was selected by the programme as well. Although the partner countries have traditionally maintained a close cooperative relationship with each other, maintaining and forming civil and cultural interchange between societies, as well as bringing all age groups of the society closer is a forward-looking step. Within the framework of the Hungary-Croatia Programme, civil organisations, sport and youth associations, minority organisations will be connected through joint initiatives promoting the cultural exchange and supporting the dialogue. Given the long-standing partnership and the number of previous joint projects, the selection of ISO (c) *building up mutual trust* and thus the encouragement of actors to further cooperation is indeed justified.

The Interreg-specific objective ISO 2 on security and defence was not selected, however due to the concentration of resources and focusing on direct benefit thematic areas this decision is justified.

It can be generally concluded that the selected specific objectives provide the right combination of key interventions, while meeting the requirement to focus the limited financial sources of the Hungary-Croatia Programme. Besides all, it is important to take into account the potential hazards and adverse effects on the environment, in line with the protective recommendations highlighted in Chapter 7 of the current Environmental report.

### 3 Main objectives of the Programme

The VI-A Hungary-Croatia Programme 2021-2027 is under development. Draft of the Chapter 1 of the Hungary-Croatia Programme plans to organize the development activities of the t 7-year period along five priorities, which are the following:

- 1. Competitive border region
- 2. Greener and low-carbon border region
- 3. Connected border region
- 4. Inclusive border region
- 5. Cooperating border region

The table below shows the relationship between the identified programme priorities and the selected Policy objectives / Interreg specific objectives. The relationships between the priorities, the internal consistency of the Hungary-Croatia Programme is described in Chapter 4.2.

*Table 1. Defined Hungary-Croatia Programme priorities and their relationship to the selected Policy Objectives/Interreg Specific Objectives.*

Programme priority	Selected policy objective or selected Interreg-specific objective	Selected specific objective
1. Competitive border region	PO 1 – a smarter Europe by promoting innovative and smart economic transformation	(iii) enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments
2. Greener and low-carbon border region	PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management	(i) promoting energy efficiency and reducing greenhouse gas emissions
		(iv) promoting climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches
3. Connected border region	PO 3 – a more connected Europe by enhancing mobility	(ii) developing and enhancing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility
4. Inclusive border region	PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights	(vi) enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation
		(ii) improving access to inclusive and quality services in education, training and lifelong learning through developing accessible infrastructure, including by fostering resilience for distance and on-line education and training

Programme priority	Selected policy objective or selected Interreg-specific objective	Selected specific objective
5. Cooperating border region	ISO 1 – a better cooperation governance	<p>(b) enhance efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles in border regions</p> <p>(c) build up mutual trust, in particular by encouraging P2P actions</p>

## 4 Cohesion and consistency of documents

### 4.1 Relationship with other relevant strategies, plans and programmes

This Chapter presents the relationship of the Hungary-Croatia Programme with relevant international contracts and agreements, respective EU directives, strategies as well as with national and regional level legislations and strategies of the Partner countries involved in the VI-A Hungary-Croatia Programme 2021-2027 by introducing the way how their objectives and environmental considerations have been taken into account in the Hungary-Croatia Programme.

#### Relevant International and European Union documents

Name of the relevant document, strategy	Cohesion
<a href="#">United Nations 2030 Agenda for Sustainable Development (A/RES/70/1)</a>	<p>The Agenda is an action plan that aims to strengthen universal peace freeing the human race from the tyranny of poverty as well as healing and securing our planet, while not being afraid of taking bold and transformative steps. The UN urges all countries and all stakeholders to implement this plan, and to act in partnership collaboratively along the Sustainable Development Goals. The Hungary-Croatia Programme supports all Goals of the UN Agenda in general, besides having a great deal of Goals that show a close alignment with the Programme:</p> <p>Goal 4. ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all accompanied by Goal 7. aimed at affordable, reliable, sustainable and modern energy for all are both perfectly in line with the Hungary-Croatia Programme PO 2 (iv) and PO 4 (vi) respectively. Goal 9. aimed at building resilient infrastructure, promoting inclusive and sustainable industrialization and fostering innovation is well supported by PO 3 (ii). Goal 15. protecting, restoring and promoting sustainable use of terrestrial ecosystems, sustainably manage forests, combating desertification, and halting and reversing land degradation and biodiversity loss also has close relations with PO 4 (vi). Goal 16. promoting peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels is strongly aligned with ISO 1. The Hungary-Croatia Programme can be considered as an example for Goal 17. which focuses on strengthening the means of implementation and on revitalising the Global Partnership for Sustainable Development.</p>



Name of the relevant document, strategy	Cohesion
<p>Paris Agreement (2015)</p>	<p>The Agreement enhances the implementation of the UN Convention on Climate Change, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty. The main objectives of the Agreement are the following: holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and; making finance flows consistent with a pathway towards low; greenhouse gas emissions and climate-resilient development.</p> <p>In the Hungary-Croatia Programme Agreement objectives are supported mainly by PO 2 (i) and PO 2 (iv) as PO 2 (i) promotes energy efficiency and reduction of greenhouse gasses emissions and PO 2 (iv) promotes climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches. Transportation is one of key factors when it comes to climate change. PO 3 (ii) promotes better connected border region. Road traffic is a significant source of greenhouse gasses as result of fuel combustion in road vehicles engines. But result of PO 3 (ii) will be shortening of travel time between Hungary and Croatia. Shorter travel time results in reducing fuel consumption i.e. in reducing of greenhouse gas emissions. Also, PO 3 (ii) promotes sustainable and climate resilient mobility also contributing to Agreement objectives.</p>
<p>United Nations Framework Convention on Climate Change (UNFCCC, 1992)</p>	<p>The objective of the Convention is to achieve stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The Convention suggests that a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner. Lately this has been extended by and reviewed in the Paris Agreement (2015) and the United Nations 2030 Agenda for Sustainable Development, which have strong connections with the Hungary-Croatia Programme as previously examined.</p>
<p>The European Green Deal</p>	<p>The European Green Deal is the response of the Community to the current climate and environmental-related challenges. It is a new growth strategy that aims to transform the EU into a resource-efficient and competitive economy. It also aims to protect, conserve and enhance the EU's natural capital, and protect the health and well-</p>

Name of the relevant document, strategy	Cohesion
	being of citizens from environment-related risks and impacts. The Hungary-Croatia Programme contributes to the realisation of the European Green Deal through all of the selected Policy objectives and Specific objectives.
European Climate Law	Linked to the European Green Deal, the European Climate Law aims to create the framework needed to achieve climate neutrality in the EU by 2050 and adaptation is highlighted as a key component of the long-term global response to climate change. PO 2 (i) and PO 2 (iv) of the Hungary-Croatia Programme support European Climate Law as PO 2 (i) promotes energy efficiency and reduction of greenhouse gasses emissions (climate neutrality) and PO 2 (iv) promotes climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches (climate change adaptation).
EU Strategy on Adaptation to Climate Change	<p>The European Green Deal, the EU's growth strategy for a sustainable future, is predicated on the realisation that the green transformation is an opportunity and that failure to act has a huge cost. The EU has already taken action to boost its resilience over the past years under the 2013 Adaptation Strategy, all Member States now have a national adaptation strategy or plan.</p> <p>In line with the Green Deal, the new Adaptation Strategy aims to realise the 2050 vision of a climate-resilient Union by making adaptation smarter, more systemic, swifter, and by stepping up international action. The Hungary-Croatia programme contributes to the realisation of the climate adaptation goals through the PO 2 (iv) promoting climate change adaptation and disaster risk prevention and resilience by enhancing protection and preservation of biodiversity and green infrastructure, including in urban areas, and reducing all forms of pollution.</p>
"Fit for 55" package	<p>The European Commission adopted in 2021 the "Fit for 55" package which represents changes to climate energy legislation. Among other things, its implementation is expected to increase the share of road vehicles with zero and low emissions.</p> <p>PO 3 (ii) of the Hungary-Croatia Programme promotes better connected border region. Road traffic is significant source of greenhouse gasses and is source of air pollutant as result of fuel combustion in road vehicles engines. But result of PO 3 (ii) will be shortening of travel time between Hungary and Croatia. Shorter travel time results in reducing of fuel consumption i.e. in reducing of greenhouse gas and air pollutant emissions. Implementation of "Fit for 55" package will have an additional positive effect in reducing of greenhouse gas and air pollutant emissions.</p>

Name of the relevant document, strategy	Cohesion
EU Water Framework Directive	<p>In line with the objectives of the Water Framework Directive (Article 1 of the Directive 2000/60/EC), the PO 2 (iv) of the Hungary-Croatia Programme contributes to improving water quality, protecting aquatic ecosystems and reducing water damage. Priority 4 <i>Inclusive border region</i> of the Hungary-Croatia Programme can enhance efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles related to water management challenges in border regions which is also a significant part of the Directive. According to the framework, "common principles are needed in order to coordinate Member States' efforts ... to contribute to the control of transboundary water problems... (23)" and according to Article 3. (4) "Member States shall ensure that the requirements of the Directive for the achievement of the environmental objectives (...), and in particular all programmes of measures are coordinated for the whole of the river basin district. For international river basin districts the Member States concerned shall together ensure this coordination and may, for this purpose, use existing structures stemming from international agreements." Hungary-Croatia Programme by its sheer existence provides an alternate basis for cooperation in water management issues as well, while enhancing sustainable tourism (at natural sites such as the Drava's river basin) under PO 4 (vi).</p>
Directive 2007/60/EC on the assessment and management of flood risks	<p>According to the Directive floods have the potential to cause fatalities, displacement of people and damage to the environment, to severely compromise economic development and to undermine economic activities. EU Member States shall, for each river basin district, or certain coastal areas or individual river basins, or the portion of an international river basin district lying within their territory, undertake a preliminary flood risk assessment (Article 3(2)(b) and 4(1)). The Hungary-Croatia Programme area contains many of the above-mentioned terrains, therefore it aids in reducing flood risks under PO 4 (iv) and ISO (b) by putting an emphasis on risk prevention measures and also enhancing efficient public administration also resolving legal and other obstacles in the programme area in order to avoid floods and minimise risks.</p>
EU Biodiversity Strategy for 2030 – Bringing nature back into our lives	<p>The Strategy linked to the European Green Deal aims to put Europe's biodiversity on a path to recovery for the benefit of people, the climate and the planet by 2030. In the post-COVID-19 context, the Strategy aims to increase the resilience of our societies to future threats, such as: the impacts of climate change; forest fires; food insecurity; disease outbreaks –including the protection of wildlife and fighting against illegal wildlife trade. Priority 2 <i>Greener and low-carbon border region</i> and PO 4 of the Hungary-Croatia Programme, in connection with the policy</p>

Name of the relevant document, strategy	Cohesion
	objectives PO 2 (iv), PO 4 (ii) and PO 4 (vi) directly serve the achievement of the actions set out in the EU Biodiversity Strategy in the CBC area.
European Landscape Convention	The aims of the Convention are to promote landscape protection, management and planning, and to organise European co-operation on landscape issues. Article 9 of the Convention (Transfrontier landscapes) declares that the Parties shall encourage trans frontier co-operation on local and regional level and, wherever necessary, prepare and implement joint landscape programmes. PO 4 (vi) of the Hungary-Croatia Programme enhances the role of culture and sustainable tourism in economic development, social inclusion and social innovation, thus Hungary-Croatia Programme is fully in line with the objective set out in this article. The priorities of the Hungary-Croatia Programme, in connection with policy objectives PO 2 (iv); and ISO 1 (b) contribute to the coordinated development of European landscapes and their sustainable use.
European Convention on the Protection of the Archaeological Heritage 1992 (Revised)	In line with the Convention the Hungary-Croatia Programme recognizes archaeological heritage sites as being important for historical and scientific research. The revised text of the Convention is focused precisely on preserving archaeological heritage in the context of planning and implementation of development projects, which is adequately incorporated in the Hungary-Croatia Programme, since local, and regional spatial development documents and strategies have been considered during the programming process.
EU Strategy for Energy System Integration	<p>Energy system integration is the coordinated planning and operation of the energy system across multiple energy carriers, infrastructures, and consumption sectors, for a more efficient, circular, and reliable energy system. The EU Strategy for Energy System Integration sets out a vision on how to accelerate the transition towards a more integrated energy system, including concrete policy and legislative measures at EU level.</p> <p>The Hungary-Croatia Programme through PO 2 (i) and PO 2 (iv) promotes clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management and directly contributes to the goals of the EU Strategy for Energy System Integration.</p>
EU Hydrogen Strategy	According to the European Union, (green) hydrogen “is a key priority to achieve the European Green Deal and Europe’s clean energy transition”. In line with the European Green Deal, the aim of the EU Hydrogen Strategy is to decarbonise hydrogen production and expand its use in sectors where it can replace fossil fuels.

Name of the relevant document, strategy	Cohesion
	<p>The Hungary-Croatia Programme through PO 2 (i) directly promotes energy efficiency and reducing greenhouse gas emissions and through PO 2 (iv) indirectly promotes climate change adaptation, and disaster risk prevention, resilience and thus contributes to the goals of the EU Hydrogen Strategy.</p>
<p>European Union Strategy for the Danube Region</p>	<p>The EUSDR is a macro-regional strategy, the main objective of which is to coordinate existing provisions and initiatives across the Danube Region to address common challenges, as in many cases cross-border cooperation and a transnational solution are needed. The EUSDR addresses a wide range of issues and development policies, which have been coordinated along 4 pillars and 12 priority areas. The Hungary-Croatia Programme is most strongly linked to the following DRS priorities: PA 2 – Sustainable Energy; PA 3 – Culture &amp; Tourism; PA 6 – Biodiversity, Landscapes and Air &amp; Soil Quality; PA 8 – Competitiveness of Enterprises; PA 9 – People &amp; Skills; PA 10 – Institutional Capacity &amp; Cooperation.</p> <p>It is important to emphasize that there is no financial resource behind the EUSDR that can be applied for. The objectives of the strategy must be embedded in existing policy frameworks and operational programs with funding. EUSDR activities are mainly supported by the Danube Transnational Programme. In addition, most of the objectives are implemented in the form of projects with the support of the European Territorial Cooperation Programs (CBC Programs, Interreg, etc.) and the National Operational Programs.</p>
<p>EU Invasive Alien Species (IAS) Regulation</p>	<p>The Regulation sets out rules to prevent, minimise and mitigate the adverse impact on biodiversity of the introduction and spread within the Union, both intentional and unintentional, of invasive alien species. IAS are animals and plants that are introduced accidentally or deliberately into a natural environment where they are not normally found, with serious negative consequences for their new environment (biodiversity and related ecosystem services, other social and economic impact), which should be prevented. Prevention of further degradation of biodiversity and ecosystem-based approaches are included in PO 2 (iv) of the Hungary-Croatia Programme, while PO 4 (vi) aims to mitigate environmental damage caused by tourism, thus protecting indigenous natural habitats located in the Hungary-Croatia Programme area.</p>

## Relevant Hungarian documents

Name of the relevant document, strategy	Cohesion
<p>National Development and Territorial Development Concept of Hungary (until 2030)</p>	<p>By implementing cross-border actions, the Hungary-Croatia Programme contributes to the sustainable, coordinated development of the south-western part of the Carpathian Basin, which is one of the specific territorial goals of the Concept (Specific territorial goal: 'Strengthening the country's macro-regional role; Intervention field: establishing and strengthening economic and rural development cooperation in the Carpathian basin; strengthening Hungary's role in spatial organisation in the Carpathian basin; and extending territorial and inter-community relations in the Carpathian basin). Moreover the Concept recognises the need for "development of rural areas with significant social disadvantages and problems" one of which is the historical territory of "Ormánság" located in Baranya County along the border between Hungary and Croatia.</p>
<p>National Spatial Planning Plan (OTrT) and Decree No 9/2019. (VI. 14.) of the Minister in charge of the Prime Minister's Office</p>	<p>The OTrT was established by Act CXXXIX. of 2018 – later supplemented with Decree No 9/2019. (VI. 14.). The scope of the Act and the Decree is to define the conditions for regional land use, the coordinated spatial order of infrastructure networks for the whole country as well as for certain priority areas containing provisions for various types of "protection zones" located all over the country that each serve at least one of the following: sustainable development and the preservation of landscape, natural-, ecological- and cultural environment and values, resources, defence interests and traditional land use. The OTrT also lists several existing and planned roads of national and international importance including ones that would create a better infrastructural connection between Croatia and Hungary.</p> <p>In light of the above both the Plan (OTrT) and the Decree are perfectly in line with PO 2 (iv) of the Hungary-Croatia Programme which promotes climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem based approaches, as well as with PO 3 (ii) which promotes development of sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility.</p>
<p>National Transport Infrastructure Development Strategy of Hungary (2014-2050)</p>	<p>Although the strategy does not explicitly mention Croatian-Hungarian cross-border plans, it is in line with PO 3 (ii) by emphasising the importance of the improvement of local mobility and reduction of territorial disparities by developing lesser developed regions to put an end to inland migration. In connection with the development</p>

Name of the relevant document, strategy	Cohesion
	of cross-border networks of tourist attractions (PO 4 (vi)), small-scale actions for the development of cross-border transport may be implemented under the program.
National Climate Change Strategy (2018-2030)	The second National Climate Change Strategy (NCCS) of Hungary is a comprehensive framework for climate policy, green economy development and social adaptation, reflecting climate protection goals in line with international and EU commitments, and directions for actions in both sectoral and territorial dimensions for policy and economic planning and for society as a whole. The strategy builds on the three pillars of tackling climate change, such as mitigation, adaptation and awareness-raising. Close coherence can be detected between the Strategy and the Hungary-Croatia Programme, as PO 1 and PO 2 both reflect the main goals of the NCCS.
National Tourism Development Strategy 2030 of Hungary (until 2030)	<p>The Hungary-Croatia Programme in PO 4 (vi) focuses on the development of tourism as one of the drivers of cross-border economic development, social inclusion and social innovation. The tourism development actions implemented within the Hungary-Croatia Programme can contribute to the increase of the tourism offer of the cross-border area in many areas (cultural tourism, gastronomy and wine tourism, event tourism, active and nature tourism) defined in the Strategy.</p> <p>The Hungary-Croatia Programme territorially affects the southern part of the Southern Transdanubian Touristical Region where the city of Pécs is located and is considered as a major cultural hub winning the title for Europe's Cultural Capital in 2010. Also in terms of wine tourism, the Villány Wine Region (close to the Hungarian-Croatian border) has a significant role as part of the cross-border area.</p>
National Energy and Climate Plan of Hungary	When launching the "Clean energy for all Europeans package", the European Commission required all Member States to prepare a National Energy and Climate Plan in line with the EU decarbonisation goals. The objectives of the Plan show close coherence with the ones of the Hungary-Croatia Programme: PO 1 (iii) enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, PO 2 (i) promoting energy efficiency and reducing greenhouse gas emissions and PO 2 (iv) promoting climate change and disaster risk prevention, resilience, taking into account eco-system based approaches. Actions supported under PO 1 and PO 2 of the Hungary-Croatia Programme will contribute to the main objectives of the National Energy and Climate Plan targeting decarbonisation, increasing energy efficiency, security of supply and the promotion of research and innovation.

Name of the relevant document, strategy	Cohesion
<a href="#">Jenő Kvassay Plan – National Water Strategy of Hungary (2017-2030)</a>	<p>One of the long-term goals of the Plan is 'Preventive flood and inland water protection'. Actions implemented under Hungary-Croatia Programme priority 2 i.e. through PO 2 <i>Greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management</i> support reducing disaster risks in the cross-border area.</p>
<a href="#">Hungary's River Basin Management Plan 2021</a>	<p>The measures needed to achieve the objectives set out in the Water Framework Directive are summarized in the, so-called, river basin management plans. The Government of Hungary published Hungary's latest river basin management plan by the Government Decision No. 1242/2022. (IV.28.) This is the third version of the Plan which contains the revision of the second period (2016-2021) of the plan and sets new targets from 2022 to 2027.</p> <p>According to Chapter 1.3.4. (Transboundary Water Relations) of the Plan, international cooperation is vital for Hungary, as more than 95% of our watercourses come from across the border and much of our groundwater resources also come from there. PO 2 (iv) and PO 4 (vi) of the Hungary-Croatia Programme contributes in general to the achievement of the objectives set out in the Plan, in particular to the performance of transboundary water management tasks.</p>
<a href="#">"Healthy Hungary 2021-2027" – Health Sector Strategy (2021-2027)</a>	<p>SO2 of the Strategy aim at promoting healthy lifestyles, reducing health risks through raising awareness, health education and health development, while SO4 supports the development of human resources in health care. PO 4 (ii) of the Hungary-Croatia Programme is linked to the activities set out in the Specific objective 1 and 4 of the Strategy.</p>
<a href="#">National Framework Strategy on Sustainable Development of Hungary (2012-2024)</a>	<p>Mainstreaming sustainability in actions under the Hungary-Croatia Programme ensures that it contributes to the achievement of the objectives set out in the Framework Strategy. Due to the nature of the Framework Strategy, the link is relevant to all priorities of the Hungary-Croatia Programme.</p>
<a href="#">National Nature Protection Plan V. (2021-2026)</a>	<p>The Plan sets out the key nature conservation responsibilities as part of the V. National Environmental Programme of Hungary. PO 2 (iv), PO 3 (ii) PO 4 (ii) and ISO 1 (b) of the Hungary-Croatia Programme contributes to a number of the objectives of the Plan such as: Nature protection planning; Social relations, attitude formation, presentation; International cooperations, sustainable mobility etc.</p>



Name of the relevant document, strategy	Cohesion
<a href="#">National Landscape Strategy of Hungary (2017-2026)</a>	<p>One of the important objectives of the strategy is to contribute to the creation of a liveable urban landscape by using land wisely (Specific objective II. of the Strategy). Actions implemented within the framework of the Hungary-Croatia Programme priority 2 can contribute to the development of urban green infrastructure, reduction of pollutions and to support more conscious land use, while PO 4 directly supports Specific objective III. of the Strategy related to the culture and education in terms of land use.</p>
<a href="#">National Forest Strategy (2016-2030)</a>	<p>The Forest Strategy, in addition to the forest and nature protection objectives prioritises the increase of forest areas that are more resilient to the impacts of climate change and supports the transition from single crops to mixed tree stands. In order to increase the forest areas in Hungary, in parallel with the Strategy a national afforestation programme has also been announced, with the aim to mobilise the population to participate in tree planting actions. The Hungary-Croatia border area is heavily afforested and provides excellent opportunities for actions related to touristic activities under PO 3 (vi) or energy production under PO 2 (i) and PO 2 (iv) of the Hungary-Croatia Programme. However, when promoting these types of activities, the objectives of the Forest Strategy such as nature protection, the sustainable management and rational use of forests shall be respected and pursued by each beneficiary.</p>
<a href="#">National Strategy for the Conservation of Biodiversity (2021-2030)</a>	<p>The Strategy identifies several vectors posing threats to biodiversity, which are in line with the nature of the Hungary-Croatia Programme. Mitigating these threats there is a strong connection between Objective 9 – “Better understanding of the links between climate change and biodiversity conservation, improving the resilience of ecosystems to climate change, and preserving biodiversity to reduce the effects of climate change and to facilitate adaptation” – of the Strategy and PO 2 (iv) of the Hungary-Croatia Programme – promoting climate change adaption and disaster risk prevention and resilience, taking into account ecosystem-based approaches. Besides threats there are many opportunities in education (e.g. awareness raising, lifelong learning) recognised by the Strategy also supported by the PO 4 of the Hungary-Croatia Programme.</p>
<a href="#">National Waste Management Plan (2021-2027)</a>	<p>The strategic goal of the Plan is to form the Hungarian waste management sector as a prime example for circular economy in Europe. The main targets of the Plan are the prevention of generation of waste, the increase of recycling for all waste streams, the reduction of landfill and the formation of the attitude of the general public. The Plan same as the PO 1 (iii) of the Hungary-Croatia Programme sees solution in the enhancement of competitiveness of relevant SMEs targeting sustainable growth and in the promotion of climate change</p>

Name of the relevant document, strategy	Cohesion
	adaptation and the improvement of access to inclusive and quality education, corresponding to PO2 (iv) and PO4 (ii) of the Hungary-Croatia Programme. The Plan also places great emphasis on mutual cooperation, which is also supported by ISO 1 of the Hungary-Croatia Programme.
Sludge Treatment and Recovery Strategy (2014-2023)	<p>The Strategy serves as a standard guide for efficient treatment and recovery of sewage sludge, as it shall be not considered as waste but a usable secondary raw material and a renewable energy source.</p> <p>The Strategy shows the closest connection with PO 2 (i) and PO 2 (iv) of the VI-A Hungary-Croatia Programme.</p>
National Clean Development Strategy of Hungary (2020-2050)	<p>Hungary aims to achieve climate neutrality by 2050 with the adoption of Act no. XLIV of 2020 on Climate Protection. The National Clean Development Strategy (NCDS or Strategy) outlines a 30-year vision of socioeconomic and technological development pathways. The Strategy identifies key action areas such as Energy efficiency improvement (1), Research, development, and innovation as well as corresponding education and training programs (8), which are closely related to PO 2 (i) and PO 4 (ii) of the Hungary-Croatia Programme, including by fostering resilience for distance and on-line education and training. One of the visions for 2050 described in the Strategy is about transportation namely making it mor sustainable, greener, safer and better connected which directly supports PO 3 (ii) of the Hungary-Croatia Programme which promotes better connected border region through development of sustainable, climate resilient, intelligent cross-border mobility.</p>
Integrated territorial development programme of Baranya County 2021-2027	<p>The Integrated territorial development programme merges the objectives and priorities of two development programmes by linking Baranya County's Territorial development programme to Hungary's Territorial and settlement development OP (TOP Plusz).</p> <p>There is a strong alignment between Action 2.1 and 1.2 – "Climate friendly county", "Urban development, municipal services" – of TOP Plusz connected to Priority V – "Creating conditions for environmental management based on the sustainable use of natural resources" – of the county's Territorial development programme and PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management – of the Hungary-Croatia Programme. Priority VI. – "Improving accessibility, promoting the creation of sustainable transportation systems" – is supported by PO 3 (ii) of the Hungary-Croatia Programme..</p>

Name of the relevant document, strategy	Cohesion
<p>Territorial development concept and programme of Baranya County 2030</p>	<p>The Hungary-Croatia Programme supports many of the objectives and priorities set out in the county's Territorial Development Concept and Programme:</p> <p>Priority II. and III. of the Concept and the Programme aim to build capacity in production and resilience focusing on the structure of education by encouraging R&amp;D&amp;I and sustainable development investments, fostering cooperation between higher education institutions and the private sector, all of which is perfectly in line with PO 1 and PO 4 (ii) of the Hungary-Croatia Programme. Priority VI. – "Improving accessibility, promoting the creation of sustainable transportation systems" is supported by PO 3 (ii). Under this priority, action 6.1 focuses on "Development of road, rail, and waterway infrastructure ensuring the international accessibility of the county," explicitly mentioning the importance of the Hungarian-Croatian border crossing. Among Baranya County's territorial objectives, there is an emphasis on the development of the South-Baranya Drava border region, which includes strengthening connections with Croatia and the Western Balkans. According to the regional development program, enhancing connections with Croatian territories is crucial for curbing negative economic and demographic trends. This enhancement is based on improving transportation conditions and ensuring flexible cross-border access. However, in Baranya County's current land-use plan, the completed road section is not marked among existing or planned roads.</p>
<p>Integrated territorial development programme of Somogy County 2021-2027</p>	<p>The Integrated territorial development programme merges the objectives and priorities of two development programmes by linking Somogy County's Territorial development programme to Hungary's Territorial and settlement development OP (TOP Plusz).</p> <p>Thematic specific objective 5 – including small scale rural project development, enhancing social services – of the Territorial development programme in connection with all actions of Priority 3 – "Development of human resources" – of the TOP Plusz, is strongly supported by PO 4 (vi) and especially by ISO 1 (b) of the Hungary-Croatia Programme.</p>
<p>Municipal Decree No. 6/2020 (III.16.) of the President of the Somogy County General Assembly on the Spatial Planning Plan of Somogy County</p>	<p>On a local scale the Municipal Decree is a more detailed version of the earlier analysed National Spatial Planning Plan (OTrT). Therefore it is also perfectly in line with PO 2 (iv) of the Hungary-Croatia Programme that promotes climate change adaptation and disaster risk prevention, resilience by taking into account ecosystem based approaches as well.</p>

Name of the relevant document, strategy	Cohesion
Territorial development concept and programme of Somogy County 2030	<p>There is a close territorial and thematic connection between the examined documents. The county level programme, similar to the Hungary-Croatia Programme, pays special attention to sustainable use of resources as well as to environmental management in order to improve the quality of life, creating conditions for a self-sustaining social economy based on local production in the county. Hungary-Croatia Programme priority 2 is connected to General objective II. of the concept – Sustainable and efficient use of internal resources, taking into account the ecological, social and economic aspects. The concept also names the “Development of the border region” as one of its thematic goals. The regional development program of Somogy County mentions the importance of strengthening Croatian-Hungarian economic relations in connection with the second measure of its second priority (Increasing the Competitiveness of Somogy Enterprises in the Industrial and Service Sectors). This measure aims to promote R&amp;D&amp;I programs and support cooperation among businesses. The document primarily expects the reinforcement of Croatian-Hungarian economic relations from the county seat, Kaposvár, and the bordering areas of Barcs, Nagyatád, and Csurgó. Zákány is associated with the latter. The specific border crossing point intended to be realized, is not explicitly mentioned in the county's regional development and spatial planning documents.</p>
Integrated territorial development programme of Zala County 2021-2027	<p>The Integrated territorial development programme merges the objectives and priorities of two development programmes by linking Zala County's Territorial development programme to Hungary's Territorial and settlement development OP (TOP Plusz).</p> <p>The Integrated territorial programme fosters liveability and the quality of social services in the county (Objective 1 and 4), while also paying attention to building resilience against climate change (Objective 6). These 3 objectives are perfectly in line with objectives of the Hungary-Croatia Programme such as PO 1 (iii), PO 4 (iv) and ISO 1. Related to PO 3 (ii) of the Hungary-Croatia Programme, Zala County's integrated territorial program includes the "Construction of the Mura Bridge between Murakeresztúr and Kotoriba (Kotor) in Croatia" as one of the highlighted cross-border development initiatives.</p>
Territorial development concept and programme of Zala County 2030	<p>The main objective of both documents is to create a wealthy and harmoniously developing green Zala County. Strategic objectives of the concept and the Programme such as Priorities III, IV and V. – “Realisation of integrated environmental programmes” – are closely related to the PO 2 and PO 4 of the Hungary-Croatia Programme. The</p>

Name of the relevant document, strategy	Cohesion
	state of road infrastructure is mentioned as one of the key problems by most of the priorities in the county's development programme. This problem may be solved through PO 3 (ii) of the Hungary-Croatia Programme.

## Relevant Croatian documents

Name of the relevant document, strategy	Cohesion
<p data-bbox="197 762 687 831">National development strategy of the Republic of Croatia until 2030</p>	<p data-bbox="705 539 1973 746">National development strategy of the Republic of Croatia until 2030 (NDS) is a fundamental document and a comprehensive act of strategic planning which directs the long-term development of society and economy in all important issues for the Republic of Croatia. Strategic framework includes vision of the Republic of Croatia in 2030, development directions (sustainable economy and society, strengthening crisis resilience, green and digital transition, balanced regional development) and strategic goals defined within development directions whose realisation will contribute to achieving the vision of the Republic of Croatia.</p> <p data-bbox="705 769 1973 1050">Priorities and objectives of the Hungary-Croatia Programme contribute to all development direction of the NDS and in particular to its following strategic goals: competitive and innovative economy, education and employment, global recognition and strengthening of the Republic of Croatia international position and role (bilateral relations), security for stable development (disaster risk prevention and improvement of the civil protection system), transition to climate neutrality (resource efficiency, climate change, energy efficiency and self-sufficiency and transition to clean energy), sustainable mobility (transport connectivity is necessary for the quality of life and is an instrument of balanced development; transport infrastructure is an instrument of national and regional development and territorial cohesion), and digital transition of society and economy.</p>
<p data-bbox="197 1177 687 1246">Spatial development strategy of the Republic of Croatia</p>	<p data-bbox="705 1088 1973 1262">Spatial development strategy of the Republic of Croatia (SDS) is a fundamental document for guiding the spatial development of the Republic of Croatia. It determines general objectives of spatial development up to 2030: initial state, priorities, guidelines, and implementation framework. Development priorities of the SDS are sustainability of spatial organisation; preservation of the identity of the space; traffic connection; energy system development; and resilience to changes.</p> <p data-bbox="705 1284 1973 1342">PO 1 (iii), PO 2 (i), PO 2 (iv), PO 3 (ii), PO 4 (ii) and PO 4 (vi) of the Hungary-Croatia Programme contribute to the SDS in particular to its following priorities: sustainability of spatial organisation (reducing regional disparities and</p>

Name of the relevant document, strategy	Cohesion
	<p>sustainable planning for development of specific areas, development of comfortable and developed cities; improving accessibility of transport infrastructure), preservation of the identity of the space (sustainable development of nature protected areas and ecological network areas, preservation and sustainable use of cultural heritage), traffic connection (developing a transport system, joining the European transport network) energy system development (increase of the share of renewable energy sources) and resilience to changes (adaptation to climate change, strengthening natural capital by planning the development of green infrastructure, increase of energy efficiency, sustainable waste management, adaptation to changing business environment, sustainable tourism).</p>
<p>Strategy and Action plan for nature protection of the Republic of Croatia for period 2017-2025</p>	<p>The Strategy and Action plan for nature protection of the Republic of Croatia (SNP) is a fundamental document of nature protection. It determines goals and guidelines for conservation of biodiversity and geodiversity and its implementation framework.</p> <p>Policies and objectives of the Hungary-Croatia Programme contribute to the goals of the SNP but partly present a threat to biodiversity. Possible threats are related to PO 2 (i) as it promotes reduction of greenhouse gas emission among others through growth in the share of renewable energy. Renewable energy sources (RES) are crucial to tackle and mitigate climate changes which represent one of the biggest threats to biodiversity at global level. RES largely contribute to decarbonisation of energy sources and enable economic development, but RES power plants often take spaces that are habitats of endangered species. Therefore, SNP emphasizes need of harmonisation of biodiversity protection and development of RES through cross-sectoral approach in physical and strategic planning, including implementation of strategic environmental assessment and environmental impact assessment, as well as ecological network appropriate assessment. Possible threats are also related to PO 3 (ii) as construction of transport infrastructure may result in habitat fragmentation, increased noise and pollution, i.e. disturbance of animals and unfavourable living conditions in the surrounding habitats. But PO 2 (iv) of the Hungary-Croatia Programme emphasizes protection of natural assets (protection of environment and nature, habitat connectivity, restoration of natural habitats etc). Balanced and inclusive development of environment sectors in line with nature, natural resources and environment is sustainable development. Thus, Hungary-Croatia Programme implementation contributes to the goals of SNP.</p>

Name of the relevant document, strategy	Cohesion
<p>Climate change adaptation strategy in the Republic of Croatia for the period up to 2040 with a view to 2070</p>	<p>According to Article 15 of the Climate Change and Ozone Layer Protection Act (Official Gazette No. 127/19) all development documents in Croatia have to be harmonised with the Climate change adaptation strategy and the Low carbon development strategy. Climate change adaptation strategy in the Republic of Croatia for the period up to 2040 with a view to 2070 (CCAS) determines goals and priorities in climate change adaptation. It focusses on 8 key sectors (water resources, agriculture, forestry, fisheries, biodiversity, energy, tourism and health) and 2 cross-sectoral areas (spatial planning and management and risk management) for which CCAS determines climate change adaptation measures.</p> <p>PO 2 (iv) of the Hungary-Croatia Programme emphasizes the importance of climate adaptation and risk prevention and management. Thus, its implementation contributes to the goals of CCAS.</p>
<p>Low carbon development strategy of the Republic of Croatia until 2030 with a view to 2050</p>	<p>According to Article 15 of the Climate Change and Ozone Layer Protection Act (Official Gazette No. 127/19) all development documents in Croatia have to be harmonised with the Climate change adaptation strategy and the Low carbon development strategy. Low carbon development strategy of the Republic of Croatia until 2030 with a view to 2050 (LCDS) determines through guidelines and measures the path of the Republic of Croatia towards a competitive economy with low greenhouse gas emissions. The LCDS applies to all sectors of the economy and human activities and is particularly relevant to energy sector, industry, traffic, agriculture, forestry and waste management.</p> <p>PO 3 (ii) of the Hungary-Croatia Programme promotes better connected border region. Road traffic is significant source of greenhouse gasses as result of fuel combustion in road vehicles engines. But result of PO 3 (ii) will be shortening of travel time between Hungary and Croatia. Shorter travel time results in reducing of fuel consumption i.e. in reducing of greenhouse gas emissions. PO 2 (i) emphasize the importance of low carbon development and PO 2 (iv) emphasizes cooperation initiatives of preparing joint sustainable energy and climate action plans. Thus, Hungary-Croatia Programme implementation contributes to guidelines and measures of the LCDS.</p>
<p>Agriculture strategy until 2030</p>	<p>Agriculture strategy determines vision and plan of the strategic transformation of agriculture and rural areas of the Republic of Croatia for the period until 2030. The vision is to produce more high-quality food at competitive</p>

Name of the relevant document, strategy	Cohesion
	<p>prices, increase the resilience of agricultural production to climate change with sustainable management of natural resources and contribute to improving the quality of life and increasing employment in rural areas.</p> <p>PO 2 (iv) of the Hungary-Croatia Programme in particular contributes to Agriculture strategy as it emphasizes need of climate change adaptation to reduce climate change impacts as well as it promotes green land use.</p>
<p><a href="#">Water Management Strategy</a></p>	<p>National water management strategy (WMS) is a long-term planning document that defines the vision, mission, goals and tasks of the state policy in water management.</p> <p>PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. Solar and geothermal energy are pointed in the Hungary-Croatia Programme to have real potential for development. Development of hydropower plants that may pose a threat to water bodies is not presented in the Hungary-Croatia Programme.</p>
<p><a href="#">River Basin Management Plan till 2027</a></p>	<p>National water management plan (WMP) is a fundamental instrument for water management and flood risk management. The WMP determines measures for achievement of water management and water protection goals and other specific goals defined in line with EU and national regulations.</p> <p>PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. Solar and geothermal energy are pointed in the Hungary-Croatia Programme to have real potential for development. Development of hydropower plants that may pose a threat to water bodies is not presented in the Hungary-Croatia Programme. Importance of climate change adaptation and ecosystem-based approach emphasized in PO 2 (iv) is also recognized in WMP in flood risk management.</p>
<p><a href="#">Multi-annual Programme of Constructing Water Regulation and Protection Facilities and Amelioration Facilities and the Multi-annual Programme for the Construction of Municipal Water Structures for the Period up to 2030</a></p>	<p>Multi-annual programmes of construction in water management are long-term programmes for construction of (1) water utility facilities (<a href="#">for period up to 2030</a>) and (2) regulation and protection water facilities and amelioration facilities (<a href="#">refers to period 2013-2022</a>).</p> <p>Policy objectives of the Hungary-Croatia Programme emphasize the importance of circular economy and green investments (PO 2) and innovative and smart economic transformation (PO 1). These objectives aim the same results as multi-annual programmes, such as sustainable development and protection of environment.</p>



Name of the relevant document, strategy	Cohesion
	Importance of climate change adaptation and ecosystem-based approach emphasized in PO 2 (iv) is also recognized in multi annual programme for regulation and protection water facilities and amelioration facilities.
<p data-bbox="197 555 687 624">Air pollution control programme for the period from 2020 to 2029</p>	<p data-bbox="705 368 1982 576">Air pollution control programme for the period from 2020 to 2029 aims (1) to achieve air pollutant emission reduction commitments defined by international treaties and EU obligations for sulphur dioxide, nitrogen oxides, non-methane volatile organic compounds, ammonia and particulate matter (PM<sub>2.5</sub>) for the period 2020-2029 and from 2030 onwards, (2) to contribute achieving the goals of limiting anthropogenic emissions of certain pollutants into the air and (3) to make progress in achieving air quality levels that do not lead to significant negative effects and risks to human health and environment.</p> <p data-bbox="705 600 1982 807">PO 2 (i) of the Hungary-Croatia Programme promotes energy efficiency and reduction of greenhouse gas emissions leading to reducing of fossil fuel consumption. Reduction of fossil fuel consumption contributes to air pollution reduction. PO 3 (ii) promotes better connected border. Road traffic is source of air pollution through emission of different substances produced by fuel combustion in road vehicles engines. But result of PO 3 (ii) will be shortening of travel time between Hungary and Croatia. Shorter travel time results in reducing of fuel consumption i.e. in reducing of air pollutant emission.</p>
<p data-bbox="197 903 687 971">Waste management plan of the Republic of Croatia for period 2023-2028</p>	<p data-bbox="705 847 1982 1023">Waste management plan of the Republic of Croatia for period 2023-2028 (WMP) determines the goals in waste management and measures achieving the set goals. Its integral part is the Waste prevention plan. Waste prevention, separate collection, reuse and recovery of waste are integral part of circular economy. PO 2 (iv) of the of the Hungary-Croatia Programme emphasizes the importance of circular economy, green investments etc. Thus, its implementation contributes to goals of WMP.</p>
<p data-bbox="197 1126 687 1227">Integrated national energy and climate plan for the Republic of Croatia for the period 2021-2030</p>	<p data-bbox="705 1062 1982 1198">Integrated national energy and climate plan for the period 2021-2030 (NECP) is based on to the five key dimensions of the Energy Union: decarbonisation, energy efficiency, energy security, internal energy market and research, innovation and competitiveness. It sets out key targets for 2030 and for achieving of key targets measures in line with other national strategies are determined.</p> <p data-bbox="705 1222 1982 1318">PO 3 (ii) of the Hungary-Croatia Programme promotes better connected border. Road traffic is source of greenhouse gasses as result of fuel combustion in road vehicles engines. But result of PO 3 (ii) will be shortening of travel time between Hungary and Croatia. Shorter travel time results in reducing of fuel consumption i.e. in</p>

Name of the relevant document, strategy	Cohesion
	reducing of greenhouse gas emissions. PO 2 (i) and PO 2 (iv) emphasize importance of low-carbon development, clean and fair energy transition, energy efficiency, green investments etc. Thus, Hungary-Croatia Programme implementation contributes to NECP targets.
Energy development strategy of the Republic of Croatia until 2030 with a view to 2050	<p>Energy development strategy of the Republic of Croatia until 2030, with a view to 2050 (EDS) presents a step towards achieving the vision of low-carbon energy production and ensures transition to a new period of energy policy. The EDS represents a wide range of energy policy initiatives, which will strengthen security of energy supply, gradually reduce energy losses and increase energy efficiency, reduce dependence on fossil fuels, increase domestic production of electricity and use of renewable energy sources.</p> <p>PO 2 (i) and PO 2 (iv) of the Hungary-Croatia Programme emphasize importance of low-carbon development, clean and fair energy transition, energy efficiency, green investments etc. Thus, its implementation contributes to strategic goals and policies of the EDS.</p>
Programme for the development of green infrastructure in urban areas for the period 2021-2030	<p>Programme for the development of green infrastructure in urban areas for the period 2021-2030 (hereinafter: GIP) aims to establish sustainable, resilient, safe and comfortable cities and municipalities. It seeks to create preconditions for a better quality of life and human health and to contribute to sustainable social, economic and spatial development.</p> <p>PO 2 (iv) of the Hungary-Croatia Programme emphasizes climate change adaptation and disaster risk prevention, resilience taking into account ecosystem-based approaches. Thus, its implementation contributes to GIP implementation.</p>
Transport development strategy of the Republic of Croatia for the period from 2017 to 2030	<p>Transport development strategy of the Republic of Croatia for the period from 2017 to 2030 (TDS) determines general and specific goals for transport sectors and measures to achieve the set goals.</p> <p>PO 3 (ii) of the Hungary-Croatia Programme promotes better connected border i.e. development of cross-border transport infrastructure. This contributes to more TDS goals of which in particular to specific (cross sectorial) goal of better harmonization of transport operations with neighbouring countries (BiH - Ploče Port and Slavonski Brod, road and rail connections BiH, Slovenia, Serbia, Italy, Montenegro and Hungary).</p>

Name of the relevant document, strategy	Cohesion
<p>Plan for the development of the geothermal potential of the Republic of Croatia until 2030</p>	<p>The purpose of the Plan for the development of the geothermal potential of the Republic of Croatia until 2030 (GPP) is to ensure the further development and use of geothermal energy as a domestic renewable potential that should be more used more in energy transformations for the production of electricity, i.e. for heating and cooling.</p> <p>PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. Solar and geothermal energy are pointed in the Hungary-Croatia Programme to have real potential for development. Thus, implementation of the Hungary-Croatia Programme contributes to GPP implementation.</p>
<p>Sustainable tourism development strategy until 2030</p>	<p>Sustainable tourism development strategy until 2030 (STDS) is a strategic planning act that serves to shape and implement development tourism policies. In line with development needs and potential, strategic goals STDS determines strategic goals and priority areas within strategic goals. Strategic goals are year-round and more regionally balanced tourism; tourism with preserved environment, space and climate; competitive and innovative tourism; and sustainable tourism.</p> <p>PO 4 (vi) of the Hungary-Croatia Programme emphasizes the importance of enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation. It is stated that tourism infrastructure and services should be developed in a coordinated way and respecting nature preservation aspects on basis of local natural and cultural heritage, focusing on development and promotion of tourism attractions, green mobility (cycling, hiking, kayak/canoe tours), improving physical connection of tourism attractions, developing tourism-related active and sport infrastructure as well as infrastructure related to cultural tourism, further strengthening the existing emerging brands (Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve, EuroVelo 13, Amazon of Europe), for the sake of generating unique and competitive tourism products. Thus, implementation of the Hungary-Croatia Programme contributes to all STDS strategic goals.</p>
<p>National plan for sustainable tourism until 2027 and an Action plan for the implementation of the National plan for sustainable tourism until 2025</p>	<p>National plan for sustainable tourism until 2027 (NPST) defines the implementation of the Sustainable tourism development strategy strategic goals and National development strategy of the Republic of Croatia until 2030 strategic goals in the field of tourism. Based on strategic goals NPST determines ten specific goals and measures to achieve them. Action plan elaborates in detail NPST measures until year 2025.</p>

Name of the relevant document, strategy	Cohesion
	<p>PO 4 (vi) of the Hungary-Croatia Programme emphasizes the importance of enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation. It is stated that tourism infrastructure and services should be developed in a coordinated way and respecting nature preservation aspects on basis of local natural and cultural heritage, focusing on development and promotion of tourism attractions, green mobility (cycling, hiking, kayak/canoe tours), improving physical connection of tourism attractions, developing tourism-related active and sport infrastructure as well as infrastructure related to cultural tourism, further strengthening the existing emerging brands (Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve, EuroVelo 13, Amazon of Europe), for the sake of generating unique and competitive tourism products. Thus, implementation of the Hungary-Croatia Programme contributes to majority of NPST specific goals.</p>
<p>Development plan of Međimurska county till 2027</p>	<p>Development plan of Međimurska county till 2027 (DP) is the main document for Međimurska county sustainable development. It includes medium-term vision, public policy priorities with special goals, as well as measures to achieve them. Public policy priorities are: (1) sustainable development, (2) healthy, inclusive and resilient society and (3) green and digital Međimurje.</p> <p>PO 1 (iii), PO 4 (ii), PO 4 (vi) of the Hungary-Croatia Programme contribute to the DP priority (1) sustainable development. PO 2 (iv), PO 4 (vi), ISO 1 (b) and ISO (c) contribute to the DP priority (2) healthy, inclusive and resilient society. PO 2 (i), PO 3 (ii) and PO 4 (vi) contribute to the DP priority (3) green and digital Međimurje.</p> <p>In DP priority (3) green and digital Međimurje, in its special goal modern transport infrastructure, among other things, the need to re-establish passenger traffic Kotoriba - Murakeresztur is highlighted.</p>
<p>Spatial plan of Međimurska county</p>	<p>Spatial plan of Međimurska county (SP) elaborates the principles of spatial planning and determines organisation, protection, use and purpose of Međimurska county territory. Spatial development should be rational in order to preserve and protect the county area.</p> <p>PO 2 (i) and PO 2 (iv) of the Hungary-Croatia Programme emphasize the importance of low-carbon development, green investments, circular economy, climate adaptation, etc. Reduction of greenhouse gas emissions emphasized in PO 2 (i) by increase of energy efficiency represent rational use of natural resources. Protection of natural assets emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural values, landscape and forests. Climate adaptation and disaster risk management also emphasized in PO 2 (iv) is directed in the SP primarily to flood protection and erosion. PO 4 (ii) related to educational infrastructure is in line with</p>

Name of the relevant document, strategy	Cohesion
	<p>the SP as distance and on-line education and lifelong learning are important in balanced development of society of county. Importance of culture and sustainable tourism emphasized in PO 4 (vi) of the Hungary-Croatia Programme is also recognized within the SP. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
<p>Development plan of Varaždinska county for the period 2021-2027</p>	<p>Development plan of Varaždinska county for the period 2021-2027 (DP) is the main document for Varaždinska county sustainable development. It includes medium-term vision, public policy priorities with special goals, as well as measures to achieve them. Public policy priorities are: (1) smart (and creative) county, (2) green (and sustainable) county and (3) healthy (and active and inclusive) county.</p> <p>PO 1 (iii), PO 4 (ii), PO 4 (vi), ISO (b) and ISO (c) of the Hungary-Croatia Programme contribute to the DP priority (1) smart (and creative) county. PO 1 (iii), PO 2 (i), PO 2 (iv), PO 3 (ii) and PO 4 (vi) contribute to the DP priority (2) green (and sustainable) county. ISO (c) contributes to the DP priority (3) healthy (and active and inclusive) county.</p>
<p>Spatial plan of Varaždinska county</p>	<p>Spatial plan of Varaždinska county (SP) elaborates the principles of spatial planning and determines organisation, protection, use and purpose of Varaždinska county territory. Spatial development should be rational in order to preserve and protect the county area.</p> <p>Protection of natural asset emphasized in PO 2 (iv) of the Hungary-Croatia Programme is in line with the SP as its provisions protect area of natural values, landscape, and forests. Disaster risk management emphasized also in PO 2 (iv) is directed in the SD primarily to flood protection. Importance of sustainable tourism emphasized in PO 4 (vi) is also recognized within the SP. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
<p>Development plan of Koprivničko-križevačka county for the period 2021-2027</p>	<p>Development plan of Koprivničko-križevačka county for the period 2021-2027 (DP) is the main document for Koprivničko-križevačka county sustainable development. It includes medium-term vision, special goals with development priorities, as well as measures to achieve them. The DP goals are: (1) better connected county with circular economy, (2) socially sensitive county and (3) smart and green county.</p> <p>PO 2 (iv) and PO 3 (ii) of the Hungary-Croatia Programme contribute to achieving the DP goal (1) better connected county with circular economy. PO 4 (ii), PO 4 (vi), ISO 1 (b) and ISO 1 (c) contribute to achieving the</p>

Name of the relevant document, strategy	Cohesion
	DP goal (2) socially sensitive county. PO 1 (iii), PO 2 (i), PO 2 (iv) and PO (vi) contribute to achieving the DP goal (3) smart and green county.
Spatial plan of Koprivničko-križevačka county	<p>Spatial plan of Koprivničko-križevačka county (SP) elaborates the principles of spatial planning and determines the organisation, protection, use and purpose of Koprivničko-križevačka county territory.</p> <p>PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. The SP envisages development of renewable energy sources depending on county's natural specifics and economic potentials. Protection of natural asset emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural values, landscape, and forests. Climate adaptation and disaster risk management emphasized in PO 2 (iv) is recognized in the SP as need, and its provision are directed mainly to flood protection and green infrastructure. It is recognized by the SP that for all vulnerable projects appropriate climate adaptation measures should be determined. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
Development plan of Bjelovarsko-bilogorska county for the period 2022-2027	<p>Development plan of Bjelovarsko-bilogorska county for the period 2022-2027 (DP) is the main document for Bjelovarsko-bilogorska county sustainable development. It includes medium-term vision, public policy priorities with special goals, as well as measures to achieve them. The DP public policy priorities are: (1) development of innovative and sustainable economy, (2) increase the quality of life, (3) green and digital transition and (4) high quality county management.</p> <p>PO 1 (iii), PO 4 (ii) and PO 4 (vi) of the Hungary-Croatia Programme contribute to the DP priority (1) development of innovative and sustainable economy. ISO 1 (c) contributes to the DP priority (2) increase the quality of life. PO 2 (i), PO 2 (iv) and PO 3 (ii) contribute to the DP priority (3) green and digital transition. ISO 1 (b) and ISO 1 (c) contribute to the DP priority (4) high quality county management.</p>
Spatial plan of Bjelovarsko-bilogorska county	PO 1 (iii) of the Hungary-Croatia Programme emphasizes importance of SMEs in economic progress and PO 4 (vi) emphasizes importance of sustainable tourism in economic development. Spatial plan of Bjelovarsko-bilogorska county (SP) recognizes importance of SME and sustainable tourism as well. PO 2 (i) promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy and the

Name of the relevant document, strategy	Cohesion
	<p>SP envisages development of renewable energy as well. Protection of natural asset emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural values, landscape, and forests. Part of the SP are provisions related to disaster risk management, emphasized also in PO 2 (iv) of the Hungary-Croatia Programme. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
<p>Development plan of Virovitičko-podravka county for the period 2021-2027</p>	<p>Development plan of Virovitičko-podravka county for the period 2021-2027 (DP) is the main document for Virovitičko-podravka county sustainable development. It includes medium-term vision, public policy priorities with special goals, as well as measures to achieve them. The DP public policy priorities are: (1) strengthening the county's economy, (2) improving the quality of life, (3) green transition and good management of space and environment and (4) improving quality of development management.</p> <p>PO 1 (iii), PO 4 (ii), PO 4 (vi) and ISO (c) contribute to the DP priority (1) strengthening the county's economy. PO 4 (vi) and ISO (c) contribute to the DP priority (2) improving the quality of life. PO 2 (i), PO 2 (iv) and PO 3 (ii) contribute to the DP priority (3) green transition and good management of space and environment. PO 2 (iv) and ISO (b) contribute to the DP priority (4) improving quality of development management.</p>
<p>Spatial plan of Virovitičko-podravka county</p>	<p>PO 1 (iii) of the Hungary-Croatia Programme emphasizes importance of SMEs in economic progress and PO 4 (vi) emphasizes importance of sustainable tourism in economic development. Spatial plan of Virovitičko-podravka county (SP) recognizes importance of SME and sustainable tourism as well. PO 2 (i) promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy and the SP envisages development of renewable energy as well. Protection of natural asset emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural values, plant and animal species landscape, and forests. Part of the SP are provisions related to disaster risk management, emphasized also in PO 2 (iv) of the Hungary-Croatia Programme. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
<p>Development plan of Požeško-slavonska county for the period 2021-2027</p>	<p>Development plan of Požeško-slavonska county for the period 2021-2027 (DP) is the main document for Požeško-slavonska county sustainable development. It includes medium-term vision, public policy priorities with special goals, as well as measures to achieve them. The DP public policy priorities are: (1) development of a competitive innovative economy through green and smart development, (2) increase the quality of life, (3)</p>

Name of the relevant document, strategy	Cohesion
	<p>efficient public administration and asset management, spatial and strategic planning and (4) balanced regional development.</p> <p>PO 1 (iii), PO 4 (ii) and PO 4 (vi) of the Hungary-Croatia Programme contribute to the DP priority (1) development of a competitive innovative economy through green and smart development. PO 2 (i), PO 2 (iv), PO 3 (ii), PO 4 (ii), ISO 1 (b) and ISO 1 (c) contribute to the DP priority (2) increase the quality of life. PO 2 (iv) and ISO 1 (b) contribute to the DP priority (3) effective public administration and asset management. PO 1 (iii), PO 2 (i), PO 2 (iv), ISO 1 (b) and ISO 1 (c) contribute to the DP priority (4) balanced regional development.</p>
<p>Spatial plan of Požeško-slavonska county</p>	<p>Spatial plan of Požeško-slavonska county (SP) elaborates the principles of spatial planning and determines and organisation, protection, use and purpose of Požeško-slavonska county territory.</p> <p>PO 1 (iii) of the Hungary-Croatia Programme emphasizes importance of SMEs in economic progress and PO 4 (vi) emphasizes importance of sustainable tourism in economic development. SP recognizes importance of SME in economic progress and in balanced development of county territory as well and recognizes also need of developing tourism in sustainable way. PO 2 (i) promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy and the SP envisages the development of renewable energy as well. Protection of natural asset emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural and landscape values, and forests. Part of the SP are provisions related to disaster risk management, emphasized also in specific objective PO 2 (iv) of the Hungary-Croatia Programme. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>
<p>Development plan of Osječko-baranjska county for the period 2021-2027</p>	<p>Development plan of Osječko-baranjska county for the period 2021-2027 (DP) is the main document for Osječko-baranjska county development. It includes medium-term vision, priority areas with special goals, as well as measures to achieve them. The DP priority areas are: (1) strengthening and improving the social system and the quality of life of citizens (2) quality, safe and preserved living space, (3) regional visibility, competitiveness and innovation of the economy and (4) effective and efficient management.</p> <p>PO 4 (ii), ISO 1 (b) and ISO 1 (c) of the Hungary-Croatia Programme contribute to the DP priority (1) strengthening and improving the social system and the quality of life of citizens. PO 2 (i), PO 2 (iv) and PO 3 (ii) contribute to the DP priority (2) quality, safe and preserved living space. PO 1 (iii), PO 4 (vi), ISO 1 (b) and ISO 1 (c) contribute</p>



Name of the relevant document, strategy	Cohesion
	to the DO priority (3) regional visibility, competitiveness and innovation of the economy. ISO 1 (b) and ISO 1 (c) contribute to the DP priority (4) effective and efficient management.
Spatial plan of Osiječko-baranjska county	Spatial plan of Osiječko-baranjska county (SP) defines the spatial development of Osiječko-baranjska county territory. PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. The SP envisages the development of renewable energy as well. Protection of natural asset emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural and landscape values, and biodiversity. Climate adaptation and disaster risk management emphasized in PO 2 (iv) are directed in the SP primarily to flood protection. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.
Development plan of Vukovarsko-srijemska county for the period 2021-2027	<p>Development plan of Vukovarsko-srijemska county for the period 2021-2027 (hereinafter DP) is the main document for Vukovarsko-srijemska county sustainable development. It includes medium-term vision, public policy priorities with strategic and special goals, as well as measures to achieve them. The DP public policy priorities are: (1) development of a competitive, innovative and sustainable economy and the improvement of the quality of life, (2) security for stable development, demographic revitalization and strengthening resilience to crises, (3) green and digital transition and (4) increasing regional competitiveness and balanced regional development.</p> <p>PO 1 (iii), PO 4 (ii), PO 4 (vi) and ISO (c) of the Hungary-Croatia Programme contribute to the DP priority (1) development of a competitive, innovative and sustainable economy and the improvement of the quality of life. PO 2 (iv) contribute to the DP priority (2) security for stable development, demographic revitalization and strengthening resilience to crises. PO 2 (ii), PO 3 (ii) and ISO (b) contribute to the DP priority (3) green and digital transition. PO 1 (iii), and PO 4 (vi) contribute to the DP priority (4) increasing regional competitiveness and balanced regional development.</p>
Spatial plan of Vukovarsko-srijemska county	Spatial plan of Vukovarsko-srijemska county (SP) determines goals in use and management of Vukovarsko-srijemska county and provides guidelines for achieving the defined goals. PO 2 (i) of the Hungary-Croatia Programme promotes reduction of greenhouse gas emission among other through growth in the share of renewable energy. The SP envisages development of renewable energy as well. Protection of natural asset

Name of the relevant document, strategy	Cohesion
	<p>emphasized in PO 2 (iv) is in line with the SP as its provisions protect area of natural and landscape values. Climate adaptation and disaster risk management emphasized in PO 2 (iv) of the Hungary-Croatia Programme are recognized in the SP as need, and it is pointed out that for all vulnerable projects appropriate climate adaptation measures should be determined. PO 3 (ii) promotes better connected border i.e. development of cross-border transport infrastructure. SP determines provisions for the development of transport infrastructure.</p>

## 4.2 Internal consistency of the programme document

In this Chapter, we examine the internal consistency of the Hungary-Croatia Programme document, paying particular attention to the following:

- possible contradictions between main chapters i.e. Chapter 1 and Chapter 2 of the Hungary-Croatia Programme, and
- possible contradictions between the actions of the planned priorities.

Chapter 1 of the Hungary-Croatia Programme contains a detailed presentation of the natural endowments, spatial characteristics, the social and economic features, the challenges, the needs and the great potential inherent in the Hungary-Croatia Programme cross-border (CBC) area. Chapter 1 also includes the justification for the selected policy objectives (PO), Interreg-specific objective (ISO), the specific objectives and the corresponding priorities, which are thoroughly detailed in Chapter 2. In Chapter 1, the POs and SOs are analysed in the light of the conclusions and lessons learned from the previous Hungary-Croatia Programme 2014-2020 and compared to other EU and national programmes and strategies as well.

The conclusions drawn confirm that although the two countries have a common history on the field of cross-border cooperation, there are still cooperation areas to improve. According to the Territorial analysis, actors from counties not directly situated by the border shall be better involved and motivated through the programme implementation period. The 2021-2027 Hungary-Croatia Programme will take this finding into account and place greater emphasis on territorial integrity. Based on the previous experiences, accurate and appropriate definition of the indicators was a priority of the current Hungary-Croatia Programme as well.

Regarding the synergies with other regional strategies, there was some logical contradiction between the wording and the tables (Chapter 1.2, page 14 of the Hungary-Croatia Programme document) included in the document:

- according to the wording, with the exception of PA 1a Waterways Mobility, PA 1b Rail-Road-Air Mobility and PA11 Security, all of the EUSDR' PAs have synergy with the SOs of the Programme.

Chapter 1 reveals that the Hungary-Croatia Programme area is characterised by no sector specialisation, thus it is indeed appropriate that the Hungary-Croatia Programme equally offers opportunities through the Interreg-specific objective to public authorities and institutions and through the thematic objectives; to SMEs from various sectors, civil organisations and the general public.

Chapter 2 of the Hungary-Croatia Programme introduces the selected priorities and contains a more detailed justification of the selected SOs, including for each case the expected results, the intervention areas, a list of future actions supported, the most important principles for the

selection criteria, the indicators, the target groups and the indicative breakdown of the EU programme resources by type of intervention. For the Hungary-Croatia Programme 2021-2027, five priorities were identified.

Priority 1 targets a competitive border region, and the initiatives launched under the SO (iii) *enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments* will be one of the projects with the highest cross-border relevance. The priority of the previous Hungary-Croatia Programme for period 2014-2020 aimed at strengthening business cooperation has now been expanded by the intention of promoting innovation cooperation in the border region as well. The enhancement of business cooperation is built on solid foundations as the partner countries have significant previous experience. Since the region lacks large enterprises, the definition of SMEs as the target group of the SO is also rational. The expected results, such as more competitive SMEs operating in the CBC area, the decrease of the extent of brain drain on both sides of the border and the achievement of the integrated economic development and the actions under this priority are consistent.

The aim of Priority 2 is a greener and low-carbon border region for the achievement of which two SOs were selected under PO 2 by the Hungary-Croatia Programme. Between SO (i) *promoting energy efficiency and reducing greenhouse gas emissions* and SO (iv) *promoting climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches* there is a close connection and the activities related to them reinforce each other's effect. As the Hungary-Croatia Programme tends to focus on supporting small-scale investments and soft activities, according to experts involved in the programming process, selecting SO (i) was not necessarily rational, since energy related projects require a large amount of support. The Hungary-Croatia Programme also justifies that due to limited sources, larger infrastructural investments are out of the scope of the Hungary-Croatia Programme. Thus, the actions listed under SO (i) related to pilot and infrastructure investments shall be reconsidered as the effective implementation of these require financial expenditures.

The goal of Priority 3 is to create a more connected border region. SO (ii) *developing and enhancing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility* has been included in the Hungary-Croatia Programme in order to combat the unfavourable conditions of the road network in the border region. These conditions derive from the fact that most of the border area is situated in the triangle of three TEN-T networks elements, with an average distance of 72 km between border crossings. Improving these conditions, creating more infrastructural connections between the two countries may help reduce the economic, commercial and social difficulties experienced in the region. The reduction in travel time caused by the improved road network would not only be economically beneficial but it would also create greener transportation in the area due to lowering emission of pollutants and greenhouse gases.

The aim of Priority 4 is an inclusive border region. For this priority, two SOs were selected under PO 4 by the Hungary-Croatia Programme: SO (vi) *enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation* and SO (ii) *improving access to inclusive and quality services in education, training and lifelong learning through developing accessible infrastructure, including by fostering resilience for distance and on-line education and training*. The selection of both objectives is justified and the related, however, the SOs selected under PO 4 represent quite diverse themes. The actions under SO (vi) place great emphasis on post-COVID-19 recovery by taking into account the outdoor and nature-friendly touristic activities. Supporting tourism which is a key factor of the CBC area is a viable choice. It is important to recognize that, in order to compensate for the difficulties caused by the COVID-19 pandemic, the Hungary-Croatia Programme aims to boost tourism in the lagging behind areas and promote green tourism as well. SO (ii) focuses on education and the activities under the specific objective are closely related to Priority 1 and 2. One of the main objectives of the Hungary-Croatia Programme is to increase the economic competitiveness of an inclusive border area, which is conditional on improving the employment situation by matching the labour market supply and demand. Since most of the SMEs in the Hungary-Croatia Programme area are still lacking business and entrepreneurship skills, greater emphasis will be placed on vocational education and trainings. However, launching educational and vocational programmes defined by the Hungary-Croatia Programme might restore the balance of the market and eliminate the socio-economic disparities in the area. In summary, the mainly soft activities under Priority 4 meet indeed the regional needs and make the development of an inclusive border region enable.

Priority 5 aims to create a cooperation border region through the implementation of actions supporting the enhancement of efficient public administration (ISO 1 (b)), and the people-to-people cooperation (ISO1 (c)). Activities under this priority will contribute to strengthening cooperation and capacity building on issues not covered by other SOs. The selected actions will allow the widest possible range of interactions between citizens, the civil society, institutions, while facilitating the social inclusion in line with Priority 4. In this context, it is important to note that a final decision has yet been made by the PC on small-scale projects within the small project funds.

In summary, it can be concluded that the priorities planned within the framework of the Hungary-Croatia Programme respond to relevant problems and challenges of the CBC area, and the actions planned under the programme priorities complement each other. The target groups of the Hungary-Croatia Programme include all groups of the society and the actions under the priorities are in line with the environmental objectives of the European Union. There is no significant contradiction between Chapter 1 and Chapter 2, and apart from minor logical misunderstandings and errors, the internal consistency of the Hungary-Croatia Programme is ensured.

## 5 Socio-economic and environmental characteristics of the CBC area

Based on the Territorial analysis in the Hungary-Chapter Programme, this Chapter briefly describes the current socio-economic and environmental situation of the Hungary-Croatia Cross Border Cooperation (CBC) area and its expected evolution without the implementation of the Hungary-Croatia Programme, in particular the cross-border systems, including the advantages and disadvantages of the cross-border location.

Within the first subchapter, the socio-economic system of the region is described on the basis of the Situation Analysis, examining the following main areas:

- Demography
- Spatial structure and built environment
- Economy and innovation
- Tourism
- Environment
- Infrastructural connectivity
- Social inclusion
- Cultural heritage and institutional cooperation
- Territorial governance

### 5.1 Demography

Regarding the demography of the CBC area most processes are relatively the same. The counties are facing serious demographic erosion which affects local infrastructure, economy and environment. Between 2016 and 2021 the rate of the population decreasing in the Hungarian counties was 2.6-3.6% while in Croatia this data was higher, between 4.2-12.3%. The most severe population loss were in Vukovarsko-srijemska, Osjecko-baranjska, Viroviticko-podravska, Pozesko-slavonska counties which lost more than one tenth of its residents in six years.

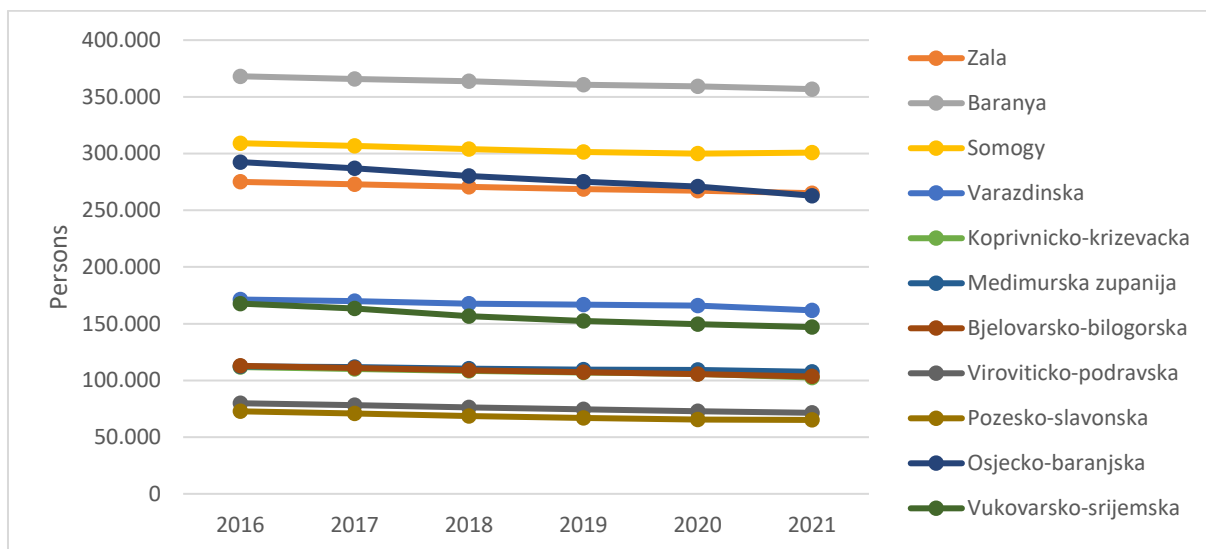


Figure 1. Population change of the CBC area, 2016-2020

Source: Eurostat

Rural areas are more effected by the process of depopulation, young and skilled population often migrates to cities within the country or abroad. Due to the demographic erosion, the rate of the lower income or pensioner population may increase which lead to a significant loss in the municipal budget. This effect is limiting the capabilities of municipalities in maintaining local infrastructure such as road network, healthcare and education. Regarding the Croatian counties, within the country these areas are less affected by the international migration, the Adriatic region is a more popular destination for temporary or permanent migration. Moreover, Zagreb and Budapest are close the CBC area, the capitals have good position in attracting the quality workforce.

One of the main causes of the decreasing number of local residents is the low fertility rate of the population. The indicator shows the average number of children which one woman has in a lifetime. For maintaining the population this number should be at least 2. The figure below shows the difference in fertility rate in the CBC area.

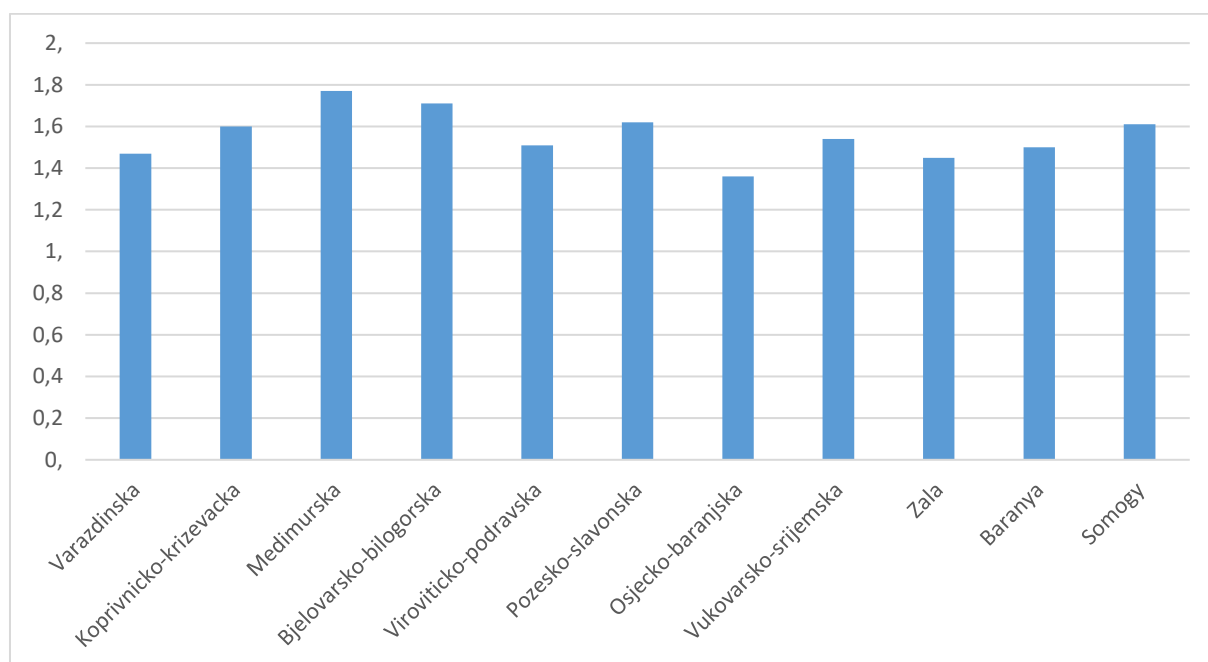


Figure 3. Total fertility rate of the CBC area, 2019

Source: Eurostat

All counties within the area have lower fertility rate than it is needed for the long-term sustaining of the population, however in Osječko-baranjska, Zala and Varazdinska counties the situation is critical with values below 1,5. With the decreasing number born children the median ages of the local populations are rising, while the population of the counties shows the problems of an ageing society. Without changing the counties fertility situation, only one factor could alleviate the rapid falling number of population, which is internal or external migration.

Ageing of the population has various effects on the local economy:

- decreasing the amount of the skilled and available workforce, while the number of pensioners is increasing;
- changing the structure of the local economy with new consumption patterns (e.g., more frequent need for healthcare services, fewer investments in building industry);

All the mentioned effects are causing significant disadvantage in the ability to attract foreign direct investment.

According the forecasts of the Eurostat all counties of the CBC area will face a dramatic loss of population, in which the numbers of 6 of 8 Croatian counties will be halved (in Vukovarsko-srijemska and Požeško-slavonska counties it is 67%!).



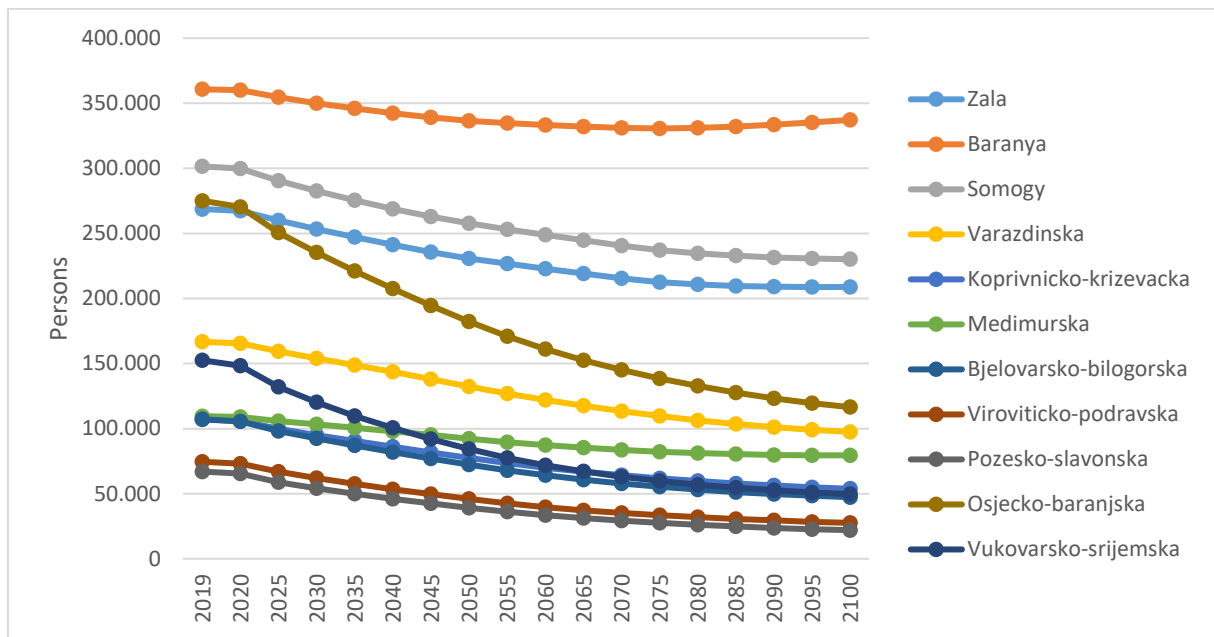


Figure 4. Population forecast of the CBC area, 2019-2100

Source: Eurostat

One of the key problematic areas which EU funds should target is changing or at least sustainably manage the depopulation process where despite the decreasing number population the local economic performance and quality of life can be maintained.

## 5.2 Spatial structure and built environment

Regarding spatial structure, Hungary and Croatia have different physical geography parameters, counties within the Carpathian basin have smaller difference in altitude, therefore the settlement structure is denser. In the Croatian counties more than third of the population is living in settlements with population less than 1000 souls. As the figure shows below, the greatest city and regional centre is Pécs in the CBC area, and 4 out of 5 most populated cities are in the Hungarian counties.

The greatest cities within the CBC area are the following:

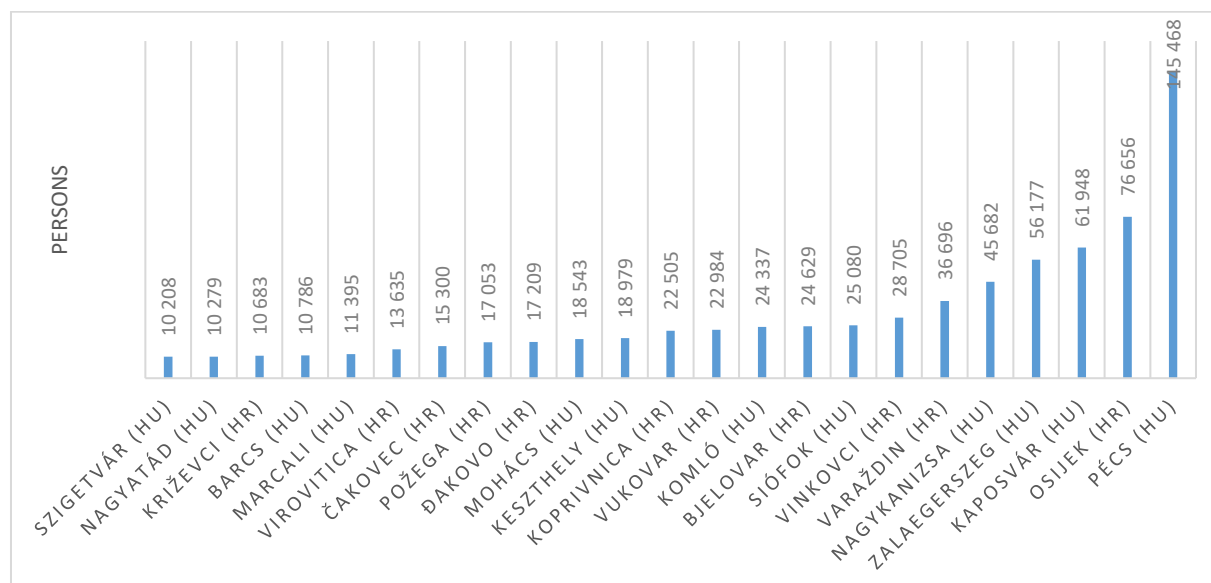


Figure 5. Cities by population in the CBC area, 2021

Source: [popis2021.hr](http://popis2021.hr); [ksh.hu](http://ksh.hu)

Cities are concentrating variety of services from commerce, healthcare, education, industrial activities which gives people more opportunities compared to rural spaces. Urbanisation has been a key spatial structure changing process since the 19<sup>th</sup> century Industrial Revolution, and cities still have comparative advantages. In Europe many axes of regional development can be observed, where the engines are great cities as London, Paris, Munich, Berlin, Budapest, Warsaw, Moskov.

There are special elements in the spatial development of the CBC area, one is the road network. The Hungarian counties are connected by the M7 and M6 highways and the interconnecting road network. The main axis of the road freight and commerce is between Budapest-Zagreb and Budapest-Pécs-Osijek, which is an important factor for settling new businesses, and attracting foreign capital. For cities outside of the highway network have worse capabilities to connect the national commerce and business development.

The most used railway lines within the programme area are between Varazdin, Osijek and Zagreb, while in the Hungarian part between Zalaegerszeg-Székesfehérvár/Győr, Nagykanizsa-Székesfehérvár, Pécs-Budapest.

Spatial structures as infrastructure are highly dependent on the natural environment. In Hungary Balaton and the other natural landmarks (as hills of Somogy, Mecsek mountain) are describing the possibilities of the growing settlement structure and development of the road network. On the other hand, in Croatia higher mountains with dense forests giving the place for spatial structures. Another main natural obstacle between the two countries' road connectivity are rivers.

Having recognized this obstacle, the two countries have addressed this challenge by initiating the following strategic projects:

- Preparing and building the missing road link between Sárok and Kneževo
- Preparing and building the missing road link between Zákány and Gotalovo
- Preparing the project documentation for the bridge between Kotoriba and Murakeresztúr.

The need and intention to improve transport connections between Croatia and Hungary was acknowledged by both parties in the *Declaration of Intent between the Republic of Croatia and Hungary with the aim to foster economic cooperation and the related transport connections between the border regions of the Republic of Croatia and Hungary* signed on 5<sup>th</sup> March 2020. In 2023 Croatia has joined the Schengen area which created a significant opportunity to reach this goal as crossing the border has become much more flexible both in terms of development and regulation.

### 5.3 Economy and innovation

The most common indicator for measuring economic performance of different regions is the indicator of Gross Domestic Product (GDP). Regarding GDP two group of counties can be observed within the CBC area, while the 3 Hungarian and Osječko-baranjska, Varazdinska counties showed economic development between 2011-2019, 6 other Croatian counties produced relatively stagnant performance. The lines also show the effect of the COVID-19 pandemic crisis where the economic downturn is more significant in counties which have had greater increase in GDP.

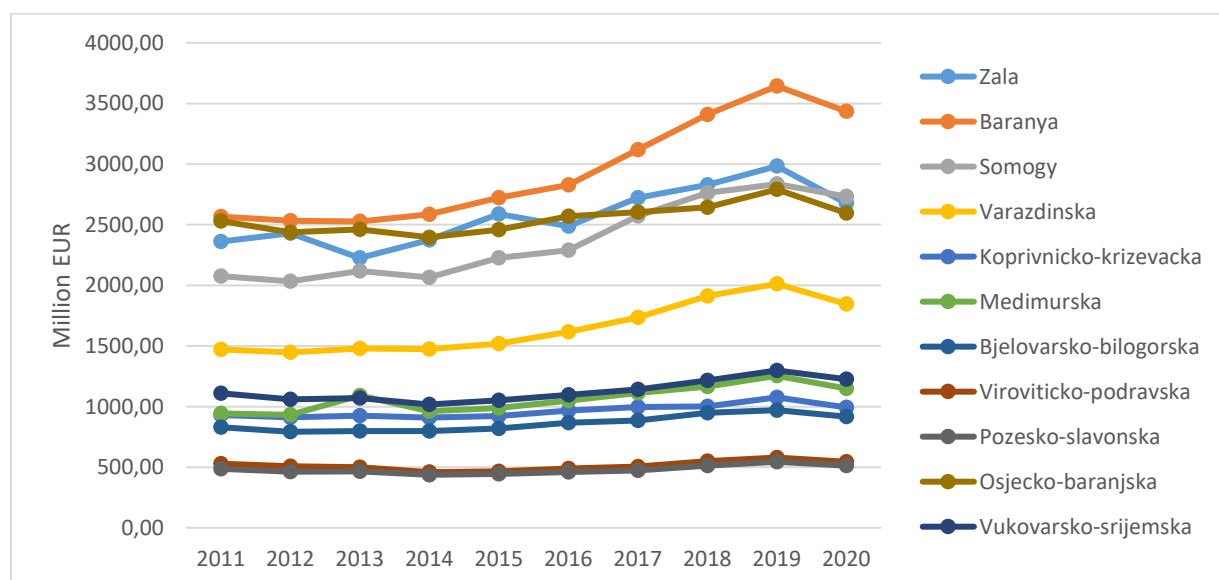


Figure 7. GDP values of the CBC area, 2011-2020

Source: Eurostat

The counties as part of the EU are highly dependent on the available support of the community, as all the area is part of a cohesion region, the counties are the main beneficiaries of the EU funds.

One of the other indicators of the economy's performance in the CBC area is the risk of poverty. According to Eurostat 2020 data, 18.3% of the population in continental Croatia and 19.5% in Hungary are at risk of poverty. The worsening poverty situation in the counties is in close connection with the critical effects of the pandemic lockdown and the rising inflation – which were more severe in Hungary.

Regarding employment, all counties of the CBC area have relatively limited potential in creating jobs as quality workforce gravitates capitals and more developed countries. The figure below shows the distribution of employees within the countries. Two Croatian counties have relatively higher rate of the national employment, Osječko-baranjska and Varaždinska. The data shows the relative economic role of the counties which shows a stagnant or decreasing situation (except Bjelovarsko-bilogorska county).

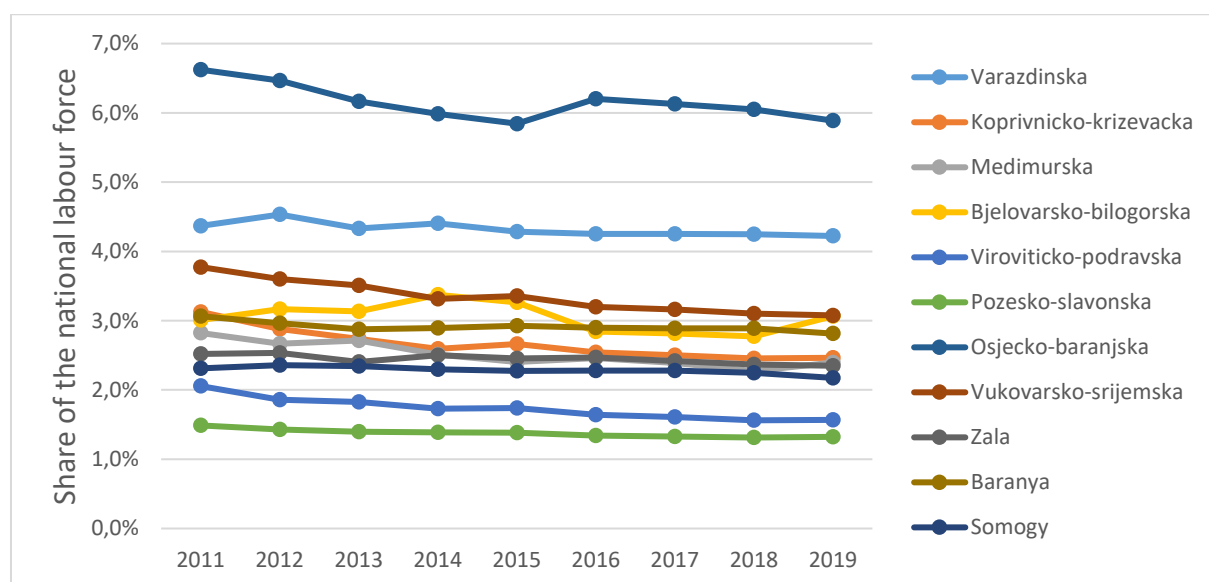


Figure 8. Distribution of workforce in the two countries, 2011-2019

Source: Eurostat

Regarding the economic and demographic challenges in the CBC area, EU funds should target the creation of high added value economic activities, jobs with which the decreasing local workforce could maintain the quality of life within the region.

## 5.4 Tourism

The CBC area is rich in natural waters such as the Balaton and thermal baths in Hungary. On the Croatian side Osječko-baranjska and Varaždinska counties have the biggest accommodation

capacities and Međimurska county is an emerging continental tourism destination, with high per capita overnight figures, which is followed by Varaždinska county. Domestic tourism dominates foreign visitors, Harkány, Hévíz and Zalakaros stand out as international tourism attractions in the region. In Hungary Pécs attracts many visitors, and thanks to several Natura 2000 sites and the EuroVelo network green tourism provide excellent potential for joint product development in the CBC area.

## 5.5 Environment

### Soil

There is considerable diversity in the soils of the area, which is also very significant in terms of its natural value. In addition to arable farming, they are mainly used by forestry, vineyards and pastures. It is important to emphasize that the proportion of forest areas in the studied area is particularly high.

The increasing number of drought days in the CBC area due to climate change, as well as the sudden heavy rainfall in mountainous and hilly areas, will increase soil degradation and soil destruction in the future. Improper agricultural practices (poor irrigation, excessive nutrient replenishment, ploughing in parallel with the slopes) significantly worsen the condition of the valuable arable land in the area (causing soil degradation and food safety problem). In terms of soil, the sites of the most significant soil pollution (at one point) in the area (Baranya County, Koprivničko-križevačka County) are still a threat to this day, and soil contamination from improper communal wastewater treatment is also a serious concern. Heavy metal pollution (Pb, Cd, Ni) of the soil is significant mainly in the former mining areas (Drava, Sava and, to a lesser extent, the Mecsek Mountains).

The area of the road infrastructure routes planned within PO3 (ii) consist of meadow soils regarding the Sároka-Kneževó route. The road's alignment entirely fits onto existing dirt or asphalt roads, so there will be *no soil disruption* on neighbouring fields. The soils in the area of the Zákány-Gotalovo route and the planned Mura Bridge are characterized by Holocene riverine sandy and muddy deposits, found on the surface and near the surface throughout the intervention area.

#### Recommendation:

It is advisable to minimize additional soil cover during construction. Proper drainage from paved road surfaces is also paramount to mitigate the effects of erosion. Biodiversity can be enhanced by widening the road verge (5-5 meters) and planting hedgerows or rows of trees there. The preservation of forests and permanent grasslands helps to protect against erosion and retain water in the case of excess precipitation and thus, contribute to climate-adaptation. It is also

important to apply precision farming practices widely to avoid dispensing excess irrigation water and excessive amounts of soil fertilizer.

## Water

The protection of surface and groundwater bodies is a priority throughout the CBC area. Along the Lake Balaton, Kis-Balaton and Drava, as well as in several smaller areas, we also find areas with highly sensitive classification of water bodies (water source), so their more intensive utilisation in any form is not recommended as it is already unsustainable. In the case of Lake Balaton, the phenomenon of algal blooms is still a prominent problem, which causes a deterioration of water quality in connection with the eutrophication of the lake. Another challenge is the recent growth of built-in areas along its shore with the elimination of former reed stands that clean the water and function as habitats for diverse flora and fauna.

Due to the increase in extreme weather events as an effect of climate change, both water supply depletion and floods have to be reckoned with periodically. Flood protection measures on the Danube, Drava, Sava, and Mura rivers are particularly important, in line with maintaining their functions as valuable habitats (according to the EU Water Framework Directive and the Habitats Directive). Large cities along the rivers can be potential sources of pollution due to inadequate wastewater treatment.

In the region, the river sections of the Danube and the Drava (further south of the Sava) can be navigated, so a larger increase in water transport means an increased load on the above-mentioned surface waters. However, the spring of 2022 faced an extremely low water level in the Drava, urging for the re-consideration of various water uses. In the case of the Drava, it is important to mention that hydropower plant system may have a detrimental effect on the water dynamics of the groundwater system associated with a given body of water.

A significant reserve of the drinking water base in Croatia is located in the Drava Valley (gravel-sand sediment layer), and their preservation in terms of quality and quantity is a strategic task. From the point of view of the public water supply, the preservation of the condition and quantity of groundwater reserves and spring waters is an important task. The sediment transport of the rivers should also be considered at this point, as the bigger sediments (gravels) are stopped by the hydropower plants (Austria, Slovenia, and Croatia in the case of the Drava; Slovakia in the case of the Danube) and this leads to silting up in some river sections while deepening riverbed in other branches. Silting up may block navigation during low-water periods, while deepening riverbed leads to deepening groundwater levels in the surrounding croplands and natural areas, threatening drinking water supply as well; and losing huge amounts of groundwater (flowing through artificial drainage canals into the rivers) from the water catchment area that constantly

dries out this way. There is also a significant geothermal water supply in the area, the protection of which is a priority.

In the course of agricultural activities, the cultivation of arable crops causes a significant burden due to the use of fertilizers and pesticides – these are still a problem in the area despite the EU regulations. The EU Biodiversity Strategy will lead to a significant decrease in the amount and toxicity of pesticides.

From a groundwater perspective, the area of the road infrastructure routes planned within PO3 (ii) of the Hungary-Croatia Programme are not situated in a drinking water protection zone and there are no significant surface waters directly adjacent to the planned road routes.

The areas of Murakeresztúr and Molnári are situated on a shallow porous water body within the Mura Valley from the perspective of subsurface water. The chemical quality of the water is good, but its overall quality (due to quantitative conditions) is weak. A water base is present in the water body, and its extraction is significant due to water withdrawal. Murakeresztúr is situated in a sensitive area in terms of subsurface water. The proposed road route for crossing the Mura River is classified as highly sensitive area in terms of subsurface water. The planned route intersects with hydrogeological protection zones. When planning the Mura Bridge, it must be taken into consideration that the road passes through a heavily silted Mura oxbow lake characterized by closed reed vegetation, where surface water appears only periodically.

Recommendation:

Care must be taken with water abstraction from sensitive water bodies; careless abstraction of both surface water and groundwater can carry hazards (local drought, extreme salinisation, depletion of groundwater resources). Furthermore, to a negligible extent, surface oil spills from potential accidents can also cause water pollution, it is advisable to operate as many electric vehicles as possible. Navigation standards should be re-considered in the face of water-level extremes (due to climate change) and sedimentation processes (due to hydropower plants on the upper river sections). When planning the Mura Bridge, it must be taken into consideration that the road passes through a heavily silted Mura oxbow lake characterized by closed reed vegetation, where surface water appears only periodically.

Air

The background air pollution in the CBC area is basically average. The largest emissions of air pollutants come from transport, with a smaller share from industry (with a couple of significant point sources), agriculture and a much smaller proportion from households. Currently, the transport of big cities, tourist centres and the area of thermal power plants are major pollutant emissions. Long-range transboundary air pollution also effects air quality in CBC area. A significant proportion of rural households use solid materials for heating. In the case of firewood,

it should be ensured that it originates from sustainable forest management (e.g., continuous cover forestry) and is used properly (dried out, not wet wood). The proportion of lignite and coal used in households should be minimised along with EU-level recommendations and the use of any other solid material for heating (household waste, construction debris such as painted wood) should be stopped.

The point of view of air pollution, activities related to infrastructure investments (e.g., expansion of the road network) may pose a threat in the CBC area. The immediate surroundings of construction sites are expected to be affected by particle pollution (PM<sub>10</sub>, PM<sub>2.5</sub>), depending on the location (distance from the construction site and/or meteorological conditions), air pollution may also increase in some of the surrounding areas (primarily particle concentration). Regarding the development of tourism in the area, it should be mentioned that due to the increase in the number of visitors, there may be an increase in air pollution due to more intense road vehicle traffic, especially on public roads leading to popular tourist destinations. Through the implementation of the new road infrastructure planned within PO3 (ii) of the Hungary-Croatia Programme, travel time in CBC area is expected to decrease, thus air pollutant emission as well.

Renewable energy sources, which are important for air protection, are not sufficiently present in the CBC area.

Recommendation:

Attention should be paid to entities defined by Hungarian and Croatian regulations whose activities, facilities or products pollute or may pollute the air with special regards to the Directive 2010/75/EU of the Parliament and of the Council on industrial emissions.

Care should be taken to minimize the time involved in carrying out construction work, avoiding delays that go beyond what is necessary. Installation of protective plant strips necessary for the protection of air quality next to the routes used by motor vehicles during the operational phase. Continuous promotion and/or usage of smart and sustainable transport solutions (public transport, e-mobility etc.) is recommended. It is also necessary to ensure faster access to popular tourist destinations and the relief of certain frequented sections of road. The "Fűts okosan!" ('Heat smartly') campaign should be continued in order to decrease the emissions from household heating. Campaigns for insulating the buildings contribute to improving air quality as well.

Biodiversity, flora, fauna

The CBC area has diverse, protected natural values and high biodiversity. The forests of the hills as well as on some alluvial areas along the big rivers are dense due to the favourable climate and ecological conditions, and their species composition is varied, but due to anthropogenic influences, part of the natural vegetation has been transformed into anthropogenic vegetation



(pastures, groves, fields, orchards). However, in case of proper management, some of these semi-natural areas may sustain important habitats for birds, butterflies, reptiles, plants etc. The area is home to significant wildlife and bird populations. Most valuable areas with high biodiversity are part of Natura 2000 ecological network and Mura-Drava-Danube Biosphere Reserve (see following subchapter Natura 2000).

In general, infrastructural expansions, especially linear infrastructural developments (to improve the accessibility of tourist destinations), have a negative impact on wildlife due to the loss and fragmentation of habitats in the affected areas: vegetation reduces during construction and weed infestation (sometimes with invasive alien species), or scrub encroachment override the desirable natural processes. Power supply facilities pose a particular threat to birds (transmission lines) and underground pipelines (natural gas pipelines) due to the frequent growth of invasive plant species in the conservation zone.

In the case of tourism developments, the negative impact on the living world must be taken into account in connection with the utilisation of the natural environment. Investments related to developments involve land occupation (e.g. construction of road sections leading to tourist destinations, construction of car parks, etc.) which may also increase fragmentation. The increasing number of visitors may cause damage to wildlife (trampling of vegetation, release of waste into nature, disturbance of sensitive animal species, e.g., nesting birds). In addition to habitat occupancy and disturbance, potential pollution must also be taken into account such as pollutants from transport networks (oil, heavy metals) that enter some nearby habitats through accumulation (wind, water). The discharge of wastewater from thermal baths into watercourses in the affected Carpathian Basin is problematic: they endanger local ecosystems in terms of both heat pollution and salt pollution. Another important problem in the CBC area is the algal bloom of Lake Balaton, for which, in addition to the increase in phosphorus concentration, the proliferation of partly invasive species may also be responsible. However, the phenomenon of algal blooms also adversely affects the local ecosystem of the lake. As a result of climate change, the chances of algal blooms and eutrophication increase in the Danube water systems and floodplains as the length of the dry periods increases.

In the valley of Drava lakes Varazdinsko and Dubrava also face serious ecosystem challenges in terms eutrophication. The Drava is one of the last really living big rivers in Europe, but the 22 hydropower plants in Austria, Slovenia and Croatia left only a short free-flowing section of it, located mostly in the joint Croatian–Hungarian section. This is why the Mura-Drava-Danube area (the only one with five participating countries in the world) was declared a Transboundary UNESCO Biosphere Reserve. Both Croatia and Hungary have high a responsibility in the various uses of this river, including river regulation works or possible navigation, in order to maintain the diverse habitats, flora and fauna along the river. In the case of the Danube, see also our notes on navigation in the Water subsection.

## Recommendation:

In the development of the infrastructure network, the habitat types of characteristics of the areas must be examined in connection with the decision-making their naturalness, the occurrence of rare and highly protected plant and animal species, the effects of construction, operation and maintenance must always be sought with the least damage. Likely short and long-term effects of climate change (e.g., extreme low waters in the rivers) should also be considered. Regular mowing and grazing can be a solution to the proliferation of invasive species. It is important to prevent water scarcity and reduce excessive water abstraction during these periods, which can further increase the effects of algal blooms and eutrophication.

## Natura 2000

There are a significant number of Natura 2000 sites in the programme area. Of these, several in the area of Croatia (the studied region is mainly the Danube-Drava area), as well as in the area of Lake Balaton and the associated catchment area in Hungary, the extent of the Bird Directive sites is significant, and their ornithological value is outstanding – Croatia has the highest proportion of special protection areas in the EU compared to the territory of the country. Valuable nature reserves (SAC areas) are located in the Danube-Drava area (both in Croatia and Hungary), and the Mura-Drava region (Croatia), which is home to valuable biotopes (botanical and zoological rarities). It is clear that a significant proportion of Natura 2000 sites are associated with aquatic habitats and wetlands – so the expected increase in shipping traffic in the future will have a negative impact on Natura 2000 species and habitats (most lakes and rivers are covered by the Natura 2000 network), while also having an effect on the coherence and functional connectivity of the ecological network.<sup>1</sup>

Within PO3 (ii) of the Hungary-Croatia Programme construction of local roads on the sections Sarok-Kneževo-Popovac and Zákány-Gotalovo and preparation of technical documentation for the construction of the Mura Bridge are highlighted.

The Sarok-Kneževo route is not located in Natura 2000 areas. The nearest Natura 2000 site on the Hungarian side (Töttösi Forest - HUDD20065) is located 6.3 km away, while the site in Croatia (Dunav Sod Kopačkog Rita - HR2001309) is 5 km away.

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<sup>1</sup> In December 2023 the Directorate of nature protection of the Croatian Ministry of economy and sustainable development issued a Decision that the Hungary-Croatia Programme is acceptable for the Natura 2000 ecological network

Zákány-Gotalovo route In Hungary does not intersect with Natura 2000 areas. The route on the Croatian side affects arable lands, non-characteristic wet grasslands, marsh habitats and alder forests. On the Croatian side, the route passes through the HR5000014 Gornji tok Drave Special Nature Reserve Areas (SCI) and HR1000014 Gornji tok Drave (SPA) and it passes close to the Western Drava Special Bird Protection Area (HUDD10002), where there is an existing gravel road, but it does not cross the National Ecological Network, yet intersects with the transnational and buffer zones of the Mura-Drava-Danube Biosphere Reserve.

With regards the Mura Bridge, the planned route crosses the Mura Riverside (HUBF20043) Special Nature Reserve Area on the Hungarian side and Mura (HR20000364) on the Croatian side, it passes through the Mura (HR2000364) Special Nature Reserve Area and intersects with the transnational and buffer zones of the Mura-Drava-Danube Biosphere Reserve.

Recommendation:

The future calls of the Hungary-Croatia Programme should impose obligation on the implementation of necessary ecological surveys and Natura 2000 impact assessments by the Beneficiaries during the preparation and implementation of the planned projects within PO3 (ii).

Climate

According to the IPCC Working Group I (WGI) [Sixth Assessment Report](#) and [IPCC WGI Interactive Atlas](#), in the CBC area (as part of Western and Central Europe) upward trends in mean surface temperature and extreme heat are observed. Regardless of future levels of global warming i.e. under all the greenhouse gas emissions (GHG) scenarios, it is projected that temperatures in all European areas and so in CBC area will rise at a rate exceeding global mean temperature changes. The frequency and intensity of hot extremes are projected to keep increasing regardless of the GHG scenario. Downward trend of cold spell is observed, and frequency of cold spells and frost days is expected to decrease under all the greenhouse gas emissions scenarios. There is low confidence in projections in direction of mean precipitation change. Observed upward trends of heavy precipitation and pluvial flood are projected to increase at global warming levels exceeding 1.5°C. River floods have upward trend in incidence and further increase is projected with high confidence. Observed upward trend of agricultural and ecological drought is projected to increase in future with medium confidence. Declines in snow cover extent and snow seasonal duration are observed and will continue in future.

Global warming will continue to increase, mainly as a result of increased cumulative GHG emissions and CBC area, same as every region of the world, is expected to face further increases in climate hazards and increasing multiple risks to ecosystems and people.

GHG emissions from the agricultural and industrial sectors, as well as from transport, transportation and households in cross-border area may exacerbate the negative changes.

The emitted GHG in the CBC area are predominantly CO<sub>2</sub>, with only a minor proportion of CH<sub>4</sub> and NO<sub>2</sub>. The most significant GHG emissions (predominantly CO<sub>2</sub>) in cross-border area are from the energy sector and the cement industry (i.e. in Beremend, Baranya county).

Source of GHG emissions are road transport and transportation. Also, increasing GHG emissions in the CBC area can be caused by improper agriculture practices (organic carbon reduction). In connection with CO<sub>2</sub> emissions, the wetlands of Kis-Balaton in the territory of Zala County in Hungary should be highlighted, which may increase their emissions due to drought caused by climate change (loss of organic carbon content and increasing CO<sub>2</sub> emissions). The potential of the region's renewable energy source is very favourable: solar energy, geothermal, wind energy, hydropower – but their sustainability depends significantly on the way they are utilized. It is also important that investments in the use of solar energy do not take the form of greenfield and any kind of biologically productive area.

It is necessary to highlight importance of the Hungarian and Croatian strategic documents on climate change. In Hungary that is National Climate Change Strategy (2018-2030). In Croatia, climate change mitigation and adaptation measures are stated in the Low-Carbon Development Strategy (until 2030 with a view to 2050) and the Climate Change Adaptation Strategy (for the period until 2040 with a view to 2070), which should be considered during the formulation of calls under the Hungary-Croatia Programme. Also, when preparing for climate change it is desired to strengthen resilience in the Hungary-Croatia Programme area, while also aiming for climate neutrality since synergies between the two pillars of climate change mitigation have to be exploited during calls.

Recommendation:

Promotion and support of climate change mitigation and climate change adaptation projects is recommended. Harmonized rules in terms of fossil fuel run vehicles and continuous promotion of e-mobility in CBC area is recommended. It is also recommended to support good agricultural practices in the area (continuous coverage of arable land, thereby reducing the loss of carbon stored in the soil; shift towards organic production in order to conserve biotic and abiotic bases). Decreasing heating energy demand due to insulation and technological development (shift in used energy sources or means of heating) in households as well as institutions and industry will also lead closer to the climate aims.

Low-carbon & green perspective

Croatia and Hungary as part of the European Union are committed to the climate neutrality and sustainable development goals. It means every sector of the economy has to reach net-zero greenhouse gas emissions or compensate the emitted quantities with forestation or creating other artificial carbon sinks. In Hungary the industry dominant economy and the extensive

agricultural production, while in Croatia the mass tourism are the key areas where low-carbon innovations and structural changes have to be implemented.

The European Green Deal was published in 2019, which outlined the main steps forward climate neutrality. Besides sectoral policies, it creates financial resources for the green transition. The goals and funds of the 2021-2027 operational programmes is highly connected with the climate goals of the Community. Financial support for promoting greenhouse gas mitigation, climate adaptation and attitude changing is very important in the CBC area in order to overcome the climate related issues. Climate change is proved to worsen the existing economic and social issues of the European countries (e.g., with internal and external migration, shortage of natural resources), therefore without investing green economy the counties will face an increasing disadvantage in competitiveness. Messages towards the citizens should be highly different based on their financial possibilities, as several households still burn the waste (especially the plastic) in their furnace or stove and suffer from energy poverty, while others (especially in bigger towns) are open to ecological consumption patterns and messages about organic products etc.

## 5.6 Infrastructural connectivity

Transportation is essential for balanced territorial development and quality of life. With Croatia's access to Schengen on the 1st Jan 2023 new opportunities in cross border transportation have been opened. Using this opportunity, PO 3 (ii) of the Hungary-Croatia Programme emphasizes development of road connections which should support links between isolated peripheral areas, in order to connect neighbouring communities, to improve and to speed up access to TEN-T and other major road/rail infrastructure, generating time savings in cross-border mobility. Construction of local roads on the sections Sarok-Kneževo-Popovac and Zákány-Gotalovo and preparation of technical documentation for the construction of the Mura Bridge are highlighted in Hungary-Croatia Programme.

Regarding aviation, smaller state or private owned airports are available in the CBC area, of which following airports can be mentioned:

- Pécs-Pogány Airport;
- Hévíz-Balaton Airport;
- Kaposvár-Kaposújlak Airport;
- Osjecko Airport (international airport);
- Varazdin Airport;
- Čakovec Airport (flight school);

These airports have minor role in international aviation, although they have the potential for cooperation within the CBC area.

The two largest rivers in the CBC area is the Drava River, which is the borderline between the two countries, and the Danube. Water transport is relevant only on the eastern part of the programme area, which has access to the Danube and some part of the Drava River. The Danube is part of the TEN-T core network (corridor VII).

## 5.7 Social inclusion

The two countries have long history of the cooperation with different cultures, all the CBC area was once part of the Austro-Hungarian Monarchy. After the world wars and the war in former Yugoslavia, the ethnic and religious situation of the two countries have become more homogeneous, ethnic groups have been continuously assimilated to the leading ethnics. Both countries have specific strategies and programmes for integrating of the increasing number of roma population focusing on education and employment.

As Hungary and Croatia are part of EU they are obligated to follow social inclusion standards on all levels. Although new technologies and regulations are ensuring and developing the quality of life of people with disabilities, both countries still have significant obstacles in the built and online environment. With the financial support of the European Social Fund many of public places such as governmental buildings, public transportation has been reconstructed focusing on the needs of people with disabilities.

Hungary and Croatia are at the forefront of internal migration as they are the borderline of the EU. Waves of numerous refugees and migrants means great border surveillance, administrative and humanitarian burden for the national authorities and non-governmental organisations. Counties of the CBC area at the borderline have to face the economic, social and environmental impact of international migration.

## 5.8 Cultural heritage and natural values

Both countries have long history with various influences from foreign culture, religion and economy. Marks of this history can be found in the CBC area, from the UNESCO Representative List of the Intangible Cultural Heritage of Humanity, although only one reached the level of the UNESCO Word Heritage: Early Christian Necropolis of Pécs (Sopianae) in Hungary.

According to the Register of cultural assets of the Republic of Croatia, within the Croatian part of the CBC area there are in total 2005 immovable protected cultural properties. Most of them are protected as singular entities (1043), followed by archaeological heritage (385), cultural historical areas (51) and cultural landscapes (2). In addition to protected cultural properties, preventive protected cultural properties and cultural properties recorded in spatial plans should be mentioned as well. According to the data from the Geoportal of cultural assets of the Republic of Croatia and available data on road infrastructure planned within PO 3 (ii) of the Hungary-Croatia

Programme, subject routes are not in the area of the protected cultural properties. Hungary has no such national cultural heritage register. With regards national cultural heritage Hungarian National Act LXIV of 2001 on the protection of cultural heritage must be taken into consideration.

In the CBC area there are a number of sites of natural values including Natura 2000 areas, protected areas of nature (such as the Danube–Drava National Park in Hungary or Mura-Drava Regional Park in Croatia) and the Mura-Drava-Danube Transboundary Biosphere Reserve (Austria, Croatia, Hungary, Serbia and Slovenia). Besides these locations, numerous tourist destinations can be found in both countries, which could help maintaining local economy and preserving rural culture. Regarding road infrastructure planned within PO 3 (ii), on Croatian side local road between Zákány – Gotalovo is in the area of the Regional park Mura-Drava. Mura Bridge (for which is by Hungary-Croatia Programme development of project document planned) is in the area of Regional park Mura-Drava and Important landscape Rijeka Mura na području Međimurske županije. Local road link between Sároka and Kneževica is not in the area of nature protected areas. On Hungarian side planned road infrastructure projects are not in nature protected areas.

Route of local road between Zákány – Gotalovo and Mura Bridge are in the area of the Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve.

As part of the European Union both Hungary and Croatia are obligated to cooperate in many levels – foreign policy, regulating common markets, harmonising laws. The main platforms of institutional cooperation are in research and development (e.g., universities, laboratories); environmental protection initiatives and implementation of cross-border projects.

Recommendation:

The call of the Hungary-Croatia Programme should impose obligation on the implementation of necessary assessments and planning by the Beneficiaries during the preparation and implementation of projects encompassing the development of cultural heritage sites.

## 5.9 Territorial governance

In case of Croatia the levels of territorial governance were established in the Regional Development Act. In accordance with this document the coordinating functions are set on a ministry level (Ministry of Regional Development and EU Funds), on a county level (NUTS 3), and on a regional level (regional development agencies).

In case of Hungary the national Act nr. XXI. of 1996 on Regional Development and Spatial Planning defines the basic framework of regional development. Whereas regional coordination is split among various ministries, cross-border cooperation programmes are managed by the Ministry

of Foreign Affairs and Trade, yet the partner counties are responsible for the coordination of regional and rural development.

In terms of NUTS 2 regions, Baranya and Somogy counties belong to South Transdanubia, while Zala county belongs to Western Transdanubia regions in Hungary. In Croatia a new NUTS 2 structure has been adopted from 2021. Koprivničko-križevačka, Krapinsko-zagorska, Međimurska, Varaždinska and Zagrebačka (without capital of Zagreb) counties form a separate NUTS 2 region named North Croatia, while Pannonian Croatia includes the other Croatian counties of the border area.

There are several differences between the two countries' governance of tourism. In case of Croatia tourism boards have to be set up on a county and local level as well, whereas the sector is coordinated only on a national level in Hungary.

To enhance unity and boost the efficiency of regional and rural development strategies in border regions, it's essential to foster collaboration among different levels of territorial governance. This includes maintaining thematic partnerships across various issues and encouraging cooperation among civil society organizations, which play a crucial role in preserving the unique identity of border areas.



## 6 Likely evolution of the environment without implementation of the Programme

Without the implementation of the Hungary-Croatia Programme, the development of the CBC area can hardly achieve its full potential. In the context of the environment, the issue of climate change can be particularly highlighted. Although climate change is a global problem, in the local context it affects all environmental elements, human health and human activities, and this is increasingly seen in everyday life.

The Hungary-Croatia Programme strongly supports efforts to combat climate change through the priority 2 *Greener and low-carbon region* (PO 2 (i) and PO (iv)). The need to mitigate climate change is implemented in other priorities, policy objectives and specific objectives of the Hungary-Croatia Programme. By mitigating climate change, one ethically and morally contributes to global efforts, while adaptation measures should increase the resilience of the CBC area, including the resilience of all environmental elements. Without it, vulnerability to the consequences of climate change is only increasing.

Careful planning, preparation, construction and implementation of CBC area cooperation and development projects, same as climate change mitigation and especially adaptation, have positive effect on environment.

## 7 Relevant environmental conflicts and problems

Based on the situation analysis, this Chapter describes the relevant environmental conflicts and problems of the Hungary-Croatia Programme CBC area, specifically those which relate to any areas of particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.

Environmental conflicts and problems that are particularly threatening the protected areas contribute to the loss of certain species and habitats and result in ecosystem degradation and weakening ecosystem resilience. The main environmental conflicts and problems are:

- Habitat change – including loss, fragmentation and degradation – of natural and semi-natural habitats due to land-use change is a main pressure. The fragmentation of the rural landscape due to urban sprawl and linear infrastructure developments, the homogenisation and loss of habitats by the development of agriculture and land abandonment, and intensively managed forests are the main causes of natural habitat degradation;
- Over-exploitation of natural resources, in particular surface and ground water bodies or soils;
- The accelerated spread of invasive alien species is not only an important driver of biodiversity loss, but also causes significant economic damage.
- Some pollution pressures have decreased, such as the nutrient enrichment of European waters. However, the level of nitrogen still substantially exceeds ecosystem eutrophication limits in most of Europe and the eutrophication risk is predicted to remain unchanged in the coming decade. Air pollution (mainly from road traffic) has a significant impact not only on human health, but also on the health of ecosystems. The most harmful air pollutants in terms of damage to ecosystems are ozone, ammonia and nitrogen oxides.
- The increasing impacts of climate change are already affecting the distribution and interactions of species and habitats projected to become an increasingly significant threat in the coming decades. Studies investigated during the past two decades show a northwards and upwards shift of the most widespread forest ecosystems in the area and highlight that the renewal of beech and hornbeam stands goes on with other species, meaning that the seedlings of the native tree species cannot keep up with climate change. Climate change is exacerbating many other environmental threats.

## 8 Environmental protection objectives relevant to the Programme

At international, Community or Member State level, there are a number of strategies – and related objectives – that are relevant to the environment and the region and that have been taken into account during the preparation of the program. In this Chapter and in addition to Chapter 4 (Relevant International and European Union documents taken into account during preparation of the study), these – mainly community level – strategies are briefly described.

The European Green Deal, published in 2019, endorsed the objective of achieving a climate-neutral EU, an economy with net-zero greenhouse gas emissions, by 2050. The implementation of the European Green Deal requires the renewal and updating of the most important policies and measures. All EU actions and policies must contribute to the objectives of the European Green Deal.

In the context of the European Green Deal, a number of strategies have been developed and renewed. The European Green Deal, in 8 subchapters – and in the related strategies – discusses the challenges and outlined solutions in each area, which are:

- Increasing the EU's climate ambition for 2030 and 2050 (2.1.1.) – *European Climate Law and EU Strategy on Adaptation to Climate Change*
- Supplying clean, affordable and secure energy (2.1.2.) – *EU Strategy for Energy System Integration*
- Mobilising industry for a clean and circular economy (2.1.3.) – *Circular Economy Action Plan*
- Building and renovating in an energy and resource efficient way (2.1.4.) – *Renovation Wave*
- Accelerating the shift to sustainable and smart mobility (2.1.5.) – *Smart and Sustainable Mobility Strategy*
- From 'Farm to Fork': designing a fair, healthy and environmentally friendly food system (2.1.6.) – *Farm to Fork Strategy*
- Preserving and restoring ecosystems and biodiversity (2.1.7.) – *EU Biodiversity Strategy for 2030*
- A zero-pollution ambition for a toxic-free environment (2.1.8.) – *Zero Pollution Action Plan*

Tackling climate change is an urgent challenge. The atmosphere is warming, and this is affecting our everyday life already now. Climate change is having an increasingly severe impact on our planet's ecosystems and biodiversity, in addition to our health and food systems.

The IPCC (Intergovernmental Panel on Climate Change) estimates that in order to address the challenges posed by climate change and limit temperature rises to 1.5 °C, global net zero CO<sub>2</sub>

emissions by 2050 and the neutrality of all other greenhouse gases by the end of the century must be achieved.

Biodiversity is one of the crucial topics of modern European environmental strategies. This complex topic is influenced by many green issues, as it is also reflected in the EU Biodiversity Strategy for 2030. In the Strategy, several actions have been formulated to reverse biodiversity loss.

Most of the activities in the EU Biodiversity Strategy are also crucial for the whole Hungary-Croatia CBC area. Not only the management of the various environmental issues, but also the maintenance and preservation of the main ecological corridors and elements are a common task of the whole cross-border area. Most environmental issues are closely interlinked and require integrated solutions. Climate change is accelerating the destruction of nature through droughts, floods and fires, while the loss and unsustainable use of nature is a key driver of climate change. Two main aims of the Strategy, namely building a coherent Trans-Europe Nature Network and legally protecting a minimum of 30% of the EU's land areas will require the inclusion of the existing protected areas (mentioned earlier) and the creation of new ecological corridors in the whole Hungary-Croatia CBC area to interconnect them. Another aim is that 10% of EU land should be under strictly Protected Areas and as part of this strict Protected Areas network, it is highlighted the necessity of protecting the remaining primary and old-growth forests along the main rivers (Danube, Drava, Sava) and hilly or mountainous areas.

The aim of restoring freshwater ecosystems means that 25 000 km of free-flowing rivers must be restored in the EU, and the above-mentioned main rivers, as well as smaller watercourses, are of outstanding potential to achieve these aims within Croatia and Hungary.

Considering the aim of greening urban and peri-urban areas, some cities and towns have already elaborated their Urban Greening Planning or started a community planning of blue and green infrastructure. Riverine, aquatic, wetland, and terrestrial habitats of the HUHR CBC area can create the main ridge of these networks.

Most of the agricultural areas in the Hungary-Croatia CBC area create the good potential to realize the aim of the reduction of the use of fertiliser by at least 20% by 2030 as well as the aim of the Zero Pollution Action plan for Air, Water and Soil because their environmental conditions are favourable for organic production.

Implementation of the EU Invasive Alien Species (IAS) Regulation will also affect these territories favourably because, among the natural and semi-natural habitats, the alluvial forests and other riverine ecosystems suffer from the greatest pressures of IAS.

## 9 Potential environmental effects of Programme implementation

In the main Chapter of the environmental assessment, the potential environmental impacts on environmental elements – such as soil; air; surface water and groundwaters; biodiversity, flora, and fauna; Natura 2000 and other nature protected areas; climate; built environment, settlement surroundings, and cultural heritage; human health and lifestyle; environment consciousness; emerging environmental conflicts and potential problems, the escalation of existing problems; interrelationship and cumulative effect of threats to the above systems – are assessed and the assessment of potential – negative, neutral, contrary, positive – environmental impacts are highlighted.

### 9.1 Potential effects on soil

#### Priority 1. Competitive border region

##### PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Projects and activities planned under PO 1 (iii) that involve infrastructure development, construction or installation of new hardware might have negative effects on soil if not managed properly. Usually, infrastructure developments consist of the construction of buildings, ancillary structures like roads, public utility installations using grading and filling which all contribute to soil sealing, loss of topsoil (therefore organic matter), loss of biological activity, possible pollution with chemicals and heavy metals through runoff and waste generation, occasionally deforestation, changes in the composition of species and reduction in the permeability of water and air in the soil that helps to combat pests and diseases. Thus, leading to widespread erosion on site and indirectly off site as well negatively affecting surrounding flora and fauna. On site erosion may result in excess of nutrients and sediments that will eventually end up in above and underground waterbodies traveling off site and posing threat to other organisms as well. Hardware installation, depending on density, weight and place of installation, might additionally lead to soil compaction.

It is important to note that soil always will be exposed during these infrastructural, construction activities, this cannot be avoided, however the impact can be minimized through establishing soil cover as soon as possible. Clean-up and disposal of all construction-related waste and chemicals should be done in accordance with national environmental regulations. These mitigation measures need to be highlighted in the relevant actions of PO 1 (iii).

Since the CBC area is very important for its agricultural production, the protection of these soils or the minimisation of erosion and pollution are paramount. Therefore, it is suggested that infrastructural activities, constructions should be carefully planned on fertile soils or near agricultural production fields.

#### Priority 2. Greener and low-carbon border region

##### PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) does not contain actions or planned projects that might have negative effect on soils. However, indirectly, for the renovation of low-emission buildings, installation of renewable energy or infrastructural equipment, clean transport solutions that might include construction activities, the same effects need to be considered as described in relation to PO 1 (iii). Moreover, renewable energy installations depending

on size and the purpose of utility might be land intensive, involving landscape alterations, land clearing and levelling which affects soil biodiversity and ultimately lead to soil compaction, increased runoff and erosion. Solar power facilities affect soil hydrologic and carbon dynamics by altering its microclimate. However, small solar installations built on residential or commercial buildings have minimal or no effect of land use. Also, the photovoltaic panels may contain hazardous materials which in case of damage or improper disposal, have spill risk, so can result in soil contamination. Direct use and residential heat pump installations for geothermal energy generation can result in small temperature changes in soil, and in case the technology applies surface discharge, then can risk soil pollution.

PO 2 (iv) might have very beneficial effects on soils, especially joint activities that aim at the maintenance of biodiversity, ecosystem services, restoration of wetlands, green infrastructure, habitats, application of nature-based solutions and all educational programs that aim to spread the importance of climate change adaptation and sustainable lands use. Among others, the restoration and maintenance of wetlands in and around the Danube-Drava-Mura Transboundary Biosphere Reserve, Órségi National Park in Zala county helps to increase the organic matter content, biological activity of soils. Wetlands are important for their enhanced carbon storage and sequestration capacity (carbon sinks), which increases the resilience and adaptive capacities of the local areas to the effects of climate change.

Since the CBC area is in high proportion characterized by agricultural land use and production activities (arable cropping, horticulture, forestry) important for economic purposes, it is suggested that this aspect is reflected in the description. It is proposed to include joint activities that focus on the widespread usage of and transition to sustainable land use practices that ranges from agroecological techniques, regenerative, organic (reduced till, leguminous cover crops, no-till for certain soil types etc.) to agroforestry practices which all put great emphasis on building back or maintaining soil health. For this, conditions for soil protection/building practices needs to be considered in the affected and surrounding agricultural areas together with the changes in quality of affected soils. Also, it would be important to have joint activities that aim at the education, training of local farmers, landowners, agri-food SMEs to learn these practices or exchange already existing good practices in order to have sustainable agricultural land use that respects and builds on biodiversity and ecosystem services. In addition to this, joint activities that raise awareness in the wider civil society, local citizens and other stakeholders on why these practices are important and how they contribute to the local adaptation to climate change, to the improvement of well-being and to the enhanced added value of the local agri-food products resulting from these practices and healthy soils. Right now, agricultural stakeholders (mainly farmers) are completely absent from PO 2 (iv), they are not even included in the main target groups. It is suggested to involve them and take into account agricultural land use in the planned activities.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

During the construction phase of road connections, erosion and sediment control plan should be developed to outline the removal, temporary storage, and utilization of the upper soil humus layer. The permanently occupied areas will lose their soil fertility. Under normal operation, no significant impacts are expected concerning the geological formation and soils.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (ii) does not contain actions or planned projects that will have negative effect on soils. However, during the infrastructure development and construction activities planned, the same negative effects on

soil and suggestions needs to be taken into account as detailed in PO 1 (iii). PO 4 (vi) has the potential to have positive effects on soils due to the sustainable nature of the planned touristic projects and activities. However, attention needs to be paid to possible negative impacts as well since still the touristic activities planned such as development of attractions, services, mobility, infrastructure will enhance the number of people and vehicles visiting a given cultural or natural sites. This greatly contributes to topsoil loss, organic matter loss, loss of biological activity, loss of vegetation (through trampling) and permeability of soils which lead to decreased resilience and buffer capacity. Construction activities that are associated with (vi) needs to take into account the effects and suggestions mentioned in PO 1 (iii).

Also, heightened touristic activity foreseen in the CBC area will ultimately lead to littering and unwanted waste generation which may present threat of soil pollution, therefore above and groundwater pollution might occur. Thus, these will have eventually a deteriorating effect on the natural value of the sites which is often the added value or purpose of the touristic visit.

To minimize these impacts, it is suggested to include joint activities focusing on education and training of local touristic companies, local residents and other relevant stakeholders about the prevention of waste generation and/or appropriate disposal at natural and cultural touristic sites following national regulations or municipal guidance. It is suggested to develop and implement harmonized practices or guidelines among touristic companies, hotels cross-country that forbid the use of single-use plastics, cutlery, single-portion foods, excessive packaging or hazardous, harmful cleaning products, rather collect the waste in canvas bags or carts etc. Harmonized guidelines should detail the collection and treatment of wastewater coming from touristic service providers or related companies. If sustainable wastewater treatment facilities and equipment are not available for stakeholders, it is proposed to include actions that support the development and procurement of the necessary equipment. Moreover, in parallel with the above-mentioned, not only touristic companies, but visitors need to be educated before their arrival and during their stay with the help of digital applications, online promotional materials or personal exchanges on the rules and proper conduct of waste disposal, but rather on how they can prepare before their visit to prevent the generation of waste.

#### Priority 5. Cooperating border region

##### ISO 1 – a better cooperation governance

Projects under ISO 1 (b) are not relevant from the perspective of soils.

ISO 1 (c) contains projects and actions that promote the organisation of various cultural, sport festivals and events which also has the same threat on soils as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities, movement of large number of visitors and vehicles, cause littering or alterations at natural sites. It is suggested to only organize such events at natural sites if the number of people and vehicles can be limited and the already mentioned precautions are taken for waste prevention.

## 9.2 Potential effects on air

#### Priority 1. Competitive border region

##### PO 1 – a smarter Europe by promoting innovative and smart economic transformation

PO 1 (iii) might have negative effects on air due to the proposed activities involving infrastructure developments and constructions as these activities result in air pollution. The risk of air pollution is even greater if these developments happen near settlements, residential areas. Air pollution contributes to

several respiratory problems such as chocking of the lungs, asthmatic or allergic reactions, viral and bacterial diseases, especially if a nearby population is exposed to it for a long period of time.

It is suggested to include joint activities for the creation of harmonised guidelines or handbooks for SMEs about best practices in development and construction activity between the two countries respecting national regulations.

Also, besides the enlarging, restructuring, refurbishment, or modernisation of building for SME development, it is suggested to include the repurposing of existing buildings in maximal possible extent. Repurposing does not require large-scale, physical construction and land clearing therefore prevents or minimizes air pollution.

### Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) will have some positive effects on air since indirectly the renovation of buildings to be more energy efficient, better use of low emission technologies, increase of renewable energy share and directly fostering e-mobility solutions will lead to the decrease of fossil fuels consumption. Reduction of fossil fuels consumptions means lower air pollutants emissions and greenhouse gas emissions, leading to improved air quality (and climate), thus in the better well-being of inhabitants – which is mainly relevant in Pécs, Hungary where air quality is often poor.

It is suggested to put greater emphasis in the low carbon projects on biophilic design that is the incorporation of natural materials like vegetation into the interior or exterior design of buildings through which the indoor air quality can be greatly improved.

PO 2 (iv) will have positive effects on air as the planned actions in relation to the protection of biodiversity, habitat reconstruction, revitalisation of green areas, parks contribute to better air quality through cleansing the air from pollutants, plus an increased CO<sub>2</sub> absorbing capacity. Green infrastructure projects and nature-based solutions in cross-border area cities (but also in small settlements, industrial parks) also help to mitigate air pollution, have a shading effect, therefore contribute to better local climate adaptation.

### Priority 3. Connected border region

PO 3 – a more connected Europe by enhancing mobility

PO 3 (ii) emphasizes development of road connections which should support links between isolated peripheral areas, in order to connect neighbouring communities, to improve and to speed up access to TEN-T and other major road/rail infrastructure, generating time savings in cross-border mobility. Road traffic is source of air pollution dominant through emission of different substances produced by fuel combustion in road vehicles engines.

Although the negative impact on air quality of new roads may be noticeable in narrow strip along roads, in broader area i.e. in cumulative aspect positive effect of PO 3 (ii) is expected. As it is stated in the Hungary-Croatia Programme, new local road connections in cross-border area aim to improve cross-border connection, to shorten travel time and to generate time savings in cross-border mobility. The result is a reduction in fossil fuel consumption in relation "no-project scenario" and thus reduction of air pollutants emission.

A temporary impact on air quality can be expected during road infrastructure construction works due to dust emissions. However, this impact is limited in time and, with the usual measures to protect the



construction site, it is spatially limited as well. The movement of transport vehicles, both on the construction site and on the roads affected by transportation, can be the most impactful in the vicinity of the planned road infrastructure routes within PO3 (ii). Other activities like demolition operations and material spreading may primarily result in dust pollution.

#### Priority 4. Inclusive border region

##### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (vi) might have some negative effects on air due to actions mentioning infrastructure developments and construction which leads to air pollution. The harmful effects on air and mitigating solutions were already discussed in PO 1 (iii).

Transport-related air pollution can be expected during enhanced touristic activity due to increased presence of vehicles at cultural and natural sites. Air pollutants are risks for site visitors and local residents, but the chance of ecotoxicity for flora and fauna is also an issue.

Therefore, it is suggested that the e-mobility, low emission transport solutions (not only cycling) planned in PO 2 (i) are taken into account in PO 4 (vi) as well. Creating local opportunities for e-mobility technologies used in sustainable tourism would greatly contribute to decreasing local or regional air pollution.

It is also proposed to include joint actions to develop harmonized rules and standards between touristic stakeholders in cross-border area to prevent, monitor and regulate the number of fossil fuel run vehicles at cultural and natural sites.

PO 4 (ii) does not contain actions or planned projects that will have negative effect on air. Only during the infrastructure development and construction activities planned, the same negative effects on air and suggestions needs to be taken into account as detailed in PO 1 (iii).

#### Priority 5. Cooperating border region

##### ISO 1 – a better cooperation governance

Projects under ISO 1 (b) are not relevant from the perspective of air.

ISO 1 (c) contains projects and actions that promote the organisation of various cultural, sport festivals and events which also has the same threat on air as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities, movement of large number vehicles at cultural and natural sites.

### 9.3 Potential effects on surface waters and groundwaters

#### Priority 1. Competitive border region

##### PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Actions listed in PO 1 (iii) including infrastructural development, construction of buildings and roads might have direct negative effects on waterbodies if not managed properly. Any construction might result in off-site impact through the excess of different pollutants that eventually end up in above and ground waters resulting in water quality decrease. Therefore, developments taking place near the rivers (Danube, Mura, Dráva etc.), lakes or other waterbodies needs to be paid special attention to. Excess of

sediments make the water turbid preventing sunlight to penetrate the water, therefore photosynthetic activity decreases in aquatic vegetation. Decrease in oxygen level results in loss and decreased naturalness of aquatic habitat. As sediment can build up in stream channels decreasing flow capacity, it increases the threat of receiving great amount of water in a short period of time which leads to frequent flooding (even in places where flooding was never a risk).

That is why it is important to develop an erosion and sediment control plan mentioned in 9.1 accompanied by the implementation plan regarding the prevention of water pollution, the control of runoff or appropriate storage and disposal of construction materials highlighted in Chapter 10.).

## Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) might have some negative effects on waterbodies. Suggestions regarding waste prevention and disposal mentioned in PO 1 (iii) and 9.1. should be paid attention to during renovation and retrofitting of buildings or infrastructural activities – as the waste generated during these developments might end up in waterways.

Regarding the installation of renewable energy sources, like geothermal power, it has the potential to cause surface water instability, since the removal of water (and steam) from underground reservoirs might cause slow sinking or over usage overtime. Therefore, it is suggested to apply techniques in geothermal power generation that mainly involve re-injection of used water into the earth in order to decrease the risk of land subsidence. In case of solar energy use, depending on the type of technology applied, these installations can consume water for cooling purposes, therefore they can increase local water demand, contributing to restrains in water usage. Also, spill risks of toxic materials of the photovoltaic panels mentioned in 9.1. might lead to surface and groundwater pollution.

PO 2 (iv) will have positive effects on waterbodies especially the ones planned for flood disaster mitigation, improvement of waterbodies, their quality and blue infrastructure, restoration of natural habitats and awareness raising actions.

The two major risks from the perspective of waterbodies are floods, especially at rivers of the cross-border area and drought. The occurrence of floods will increase due to climatic and precipitation extremities. Drought periods result in the decrease of water flow and volume which lead to increased salinity due to reduced dilution and the change in the pH alters and threatens aquatic ecosystems. Decrease in water levels leads to water shortages that cause irrigation disruptions in the local agricultural production – which have been more and more common at the border region as well.

As mentioned in 9.1., it must be highlighted here as well that agricultural land use should be included especially with regards to the water retention measures. It is suggested to include joint activities to develop harmonized water retention and storage strategies and practices cross-border among farmers with the support of nature conservation and flood prevention experts. Also, training and education of stakeholders about already existing measures or harmonized ones should be included. Organic, regenerative, agroecological practices that improve soil structure therefore making it able to limit surface runoff should be widespread applied in the border region just as the reconstruction of natural ponds and small reservoirs, construction of weirs for storage in rivers canals and adequate irrigation-drainage system that regulate outflow.

It is proposed to have joint actions that aim at the transformation of river management following ecological approaches and reconstruction of deteriorated river sections and floodplains. In order to achieve its expected outcomes, (iv) should ensure that any hydropower plant constructions planned in

the future on Mura and Drava will not be granted until further progress has been made to improve hydropower systems/technologies to be more environmentally friendly and to decrease the damage to aquatic ecosystems.

Moreover, in the event of a major accidents affecting waterways, European Union directives and national laws and regulations in relation to disaster protection needs to be taken into account (CXXVIII. law of 2011; 219/2011. (X.20.) regulation; 96/82 / EC council directive; 2012/18 / EU directive).

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

During the preparation and actual construction of projects under PO3 (ii), the assembly and operation of construction facilities should be carried out in a way that minimizes the environmental impact. Construction of the planned roads might have direct negative effects on waterbodies if not managed properly through the excess of different pollutants that eventually end up in above and ground waters resulting in water quality decrease. Therefore, developments taking place near the Mura and Drava rivers needs to be paid special attention to. Hazardous waste and fuel storage facilities must be designed in a way that prevents the release of pollutants into the environment even in case of accidents. Such facilities cannot be located temporarily within the protected areas. Throughout the construction process, strict attention must be paid to pollution-free work. In order to mitigate the effects of potential accidents, the contractor must have an emergency plan and should promptly initiate damage control according to its provisions. After the construction activities, the additional environmental impact resulting from the construction must be eliminated, and the area must be rehabilitated. During the operation of roads, the main concerns are the effects of rainwater runoff, which can carry surface pollutant.

Thorough environmental impact assessment has to be carried out by the contracted Beneficiaries within this priority, wherein special attention should be paid to the effects during floods.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (vi) might have negative effects in the border region rich of waterbodies. Touristic activity – even if it is called ecotourism – will eventually increase water consumption, resulting in overuse of this resource mainly for hotel accommodations, food production, sport, cultural activities or personal use. This leads to the deterioration in water quality, pollution with wastewater that contaminates above and groundwaters threatening aquatic ecosystems, surrounding flora and fauna and local inhabitants. Moreover, littering and waste disposals adds to this pollution and spoils the attractiveness of natural and cultural sites.

It is proposed to have joint actions to harmonize or develop regulations in relation to wastewater discharges and to adopt or support the development of physical or biological treatment of wastewater at touristic facilities across the two countries.

PO 4 (ii) does not contain actions or planned projects that will have negative effect on waterbodies. Only during the infrastructure development and construction activities planned, the same negative effects on water and suggestions needs to be taken into account as detailed in PO 1 (iii).

Priority 5. Cooperating border region

ISO 1 – a better cooperation governance

Projects under ISO 1 (b) are not relevant from the perspective of waterbodies.

ISO 1 (c) contains projects and actions that promote the organisation of various cultural, sport festivals and events which also have the same threat on waters as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities.

## 9.4 Potential effects on biodiversity, flora, and fauna

Priority 1. Competitive border region

PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Projects and actions listed in PO 1 (iii) that involve infrastructure development, construction of buildings or ancillary structures (roads) may have negative effects on biodiversity, flora and fauna. These activities almost always entail land clearing, often deforestation, which directly leads to habitat loss, alterations and decline in biodiversity. They also make native habitats fragmented, and the extent and connectivity of remaining habitats reduced, therefore threatening the survival of species, increasing mortality, and reducing populations (mainly bigger vertebrates that have larger home range). Also, accompanying noise pollution increase stress, disturbs feeding, hunting, breeding behaviour and often results in relocation. Moreover, waste and wastewaters from construction sites present threat for plant life, aquatic ecosystems, and vertebrates altogether, so negatively influences the adaptive capacity and ability to react to climatic changes, natural disaster or extreme weather, and support the penetration of invasive alien species as well.

Therefore, it is important that the planned developments only occur in accordance with relevant national environmental regulations (definitely for long-standing developments and in protected natural areas like the Mura-Drava-Danube Transboundary UNESCO Biosphere Reserve, Natura 2000 sites or forest reserves (mainly in Zala, Somogy, Bjelovar, Pozega-Slavonia counties) in the two countries.

In case of other non-protected natural areas, it is suggested to develop harmonized biodiversity reparation strategies and practices for infrastructure development activities (for mainly greenfield projects) with the support of conservation experts cross-border including measures such as restoring and linking together existing habitats which could support wildlife, retaining existing tracts of habitat within development sites to save ecological strips or recreating similar features, improving the surrounding landscape with buffer areas to support wildlife or relocating habitats if necessary. Also, depending on the purpose of development, environmental impact assessment should be elaborated by the Beneficiaries in case of greenfield and built area projects. In addition, proper analysis of remaining biodiversity value for built areas should be done accompanied with harmonized best practice guidelines for biodiversity protection.

Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) will have negative effects on biodiversity if the construction of solar and geothermal power plants is foreseen in the actions. The construction of these power plants might require deforestation, land use

change from permanent grasslands (previously used as pastures or hayfields), large land clearings that result in loss or fragmentation of natural habitats and possible disappearance of species (e.g. protected flora and fauna). In addition, let it be residential solar panels or solar parks, the interaction of wildlife with these installations will increase the causing of injury or death (insect, birds) – this might be especially problematic for protected species.

In the meantime, PO 2 (i) will indirectly have some positive effects on biodiversity if the decrease in GHG emissions and pressure on natural resources will result from the funded projects and activities. Due to this contradiction, it is important to harmonize national biodiversity strategy targets with renewable energy development plans in a cross-sectoral manner with the elaboration of environmental impact assessment.

Suggestions detailed in 9.2. and 9.6 in relation to the incorporation of biophilic design in the energy efficient renovation and retrofitting of buildings would also greatly contribute to have better biodiversity or more vegetation cover in the cities.

PO 2 (iv) will have direct positive effects on biodiversity, flora and fauna especially the joint activities that aim to improve the connectivity between habitats, to build back ecological corridors, restoration of wetlands, protection of native species and related joint awareness raising actions.

Although one of the most significant wetland areas of Europe, the Mura-Drava-Danube Transboundary Biosphere Reserve (TBR) can be found at the border of the two countries, there was very little mentioned in the planned projects and activities about that. There is a substantial support behind TBR now thanks to the inter-governmental agreement between the five bordering countries, which hopefully will drive the restoration of waterside areas, river branches and habitats.

Therefore, it is suggested to include specific actions dedicated solely to the Mura-Drava-Danube TBR, not only because it has a unique biodiversity with rare habitats such as floodplain forests and islands, gravel and sandbanks or oxbows that provide shelter, resting and nesting place for large number of migratory and protected birds. But because it stretches along the border of both countries signifying the importance of cross border cooperation and relations (which is an outstanding purpose of this program). Besides joint water retention strategies dedicated joint actions should put emphasis also on the creation of protective grassland zones around wetlands.

In harmony to the suggestions of 9.1., joint actions to educate and train agricultural stakeholders about the environmentally friendly, organic or agroecological practices that can be used to preserve biodiversity in the region should be extended with topics such as the importance of shelter belts, preserving landscape features and maintaining traditional landscapes, landscape diversity, in accordance with natural characteristics, agroforestry practices, avoidance of synthetic fertilizers, desiccants, chemical pesticides (especially neonicotinoids).

The planned soft educational and awareness-raising actions should focus on the impacts of climate change on biodiversity in the two countries and also on the role of biodiversity in climate control and climate change adaptation (e.g. carbon sinks, carbon storage, water storage, type of ecosystem services it provides etc.).

PO 2 (iv) does not mention forests in any way, which is a shortcoming since forests are just as important from a biodiversity perspective (they also maintain species-rich communities) as regional waterbodies which seems to be the focus of PO 2 (iv). The cross-border area is rich in forests and protected forests; therefore, it is proposed to have dedicated joint actions focusing on the exchange and/or adoption of good forest management practices that aim at achieving structurally diverse forests, maintenance of native trees or replacement of invasive tree species to native ones.

It is also suggested to have joint efforts to evaluate the status of regional ecosystem services, and to create a data sharing system not only among conservation bodies and public authorities, but intersectoral work of all the relevant stakeholders (agriculture, hunting and game management etc.)

Besides altering the sedimentation processes and the formation of gravel bars and islands, the existing hydropower plants make high pressures on the riverine habitats (and their species) as well, causing extremely low water in some stretches, and floods during short peak periods (when the turbines operate). It is suggested not to plan additional hydropower plants on Mura and Drava rivers until further progress has been made to improve existing hydropower systems/technologies to be more environmentally friendly and to decrease the damage to aquatic ecosystems.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

During operation, roadways can have a fragmentation and barrier effect on the surrounding habitats. The extent of the fragmentation effect depends on the quality, extent, and vulnerability of the habitats. Before development, a thorough examination must be conveyed regarding potential fragmentation effects concerning the planned roads.

Barrier effects, on the other hand, largely depend on the community present in the habitat and the vagility of the species involved. Barrier effects can be mitigated by appropriately sized ecological passages. During operation, there is a possibility of population decline due to roadkill, which depends on factors such as traffic volume and speed. This impact can be minimized by mapping migration routes and species during habitat assessment and properly planning necessary ecological passages.

Roadkill poses a minor threat to the local wildlife. The direct impact of the planned roads, such as habitat destruction, disturbance, and pollution, will occur within a 20 m wide strip. Fragmentation and isolation affect different groups of organisms to varying degrees. The indirect impact area includes the spread of effects due to changes in the environmental conditions within the direct impact area. The width of the indirect impact area depends on the species, its home range and habitat, ranging from 20-25 to 100 m on either side of the road centerline. During operation and in the event of accidents, pollutants can enter to the wet road surface. These pollutants can harm the metabolic processes of animals, especially amphibians. Another type of pollution comes from noise and vibration, which can cause many noise-sensitive vertebrate species to permanently leave the immediate vicinity of the road.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (vi) might have negative effects on the biodiversity specially in relation to the impacts mentioned in PO 1 (iii) concerning infrastructural developments and construction. Moreover, the enhanced touristic activity and development of service infrastructure foreseen here inevitably will clear and convert land in some way or form resulting in biodiversity loss, fragmented habitats and populations. This also leads to overexploitation since there will be a high demand for natural resources (food, water, materials). So, it is strongly recommended to avoid any prestige or luxury driven touristic service developments such as artificial sport grounds (golf course) or landscape structures which not only overuse resources, but disrupt habitats and related biodiversity. Tourism also can result in the emergence of invasive species in a given habitat. These species act as weeds or pests by pressing out the native population when introduced to areas outside their local ecosystem. Since the presence of invasive species is already an issue to be dealt with in the target area (TBR, protected forest reserves, Natura 2000 areas, national park, nature parks, regional parks, special reserves, significant landscapes, park-forest, monuments of nature

and monuments of park architecture), this should not be made worse through tourism. Another risk of tourism on biodiversity is waste generation and inappropriate disposal which leads to pollution with wastewater (sewage, solid waste, fertilizers, pesticides used in sport grounds, parks) resulting in the disruption in healthy ecosystem functions, water quality, toxicity and damage to vegetation and wildlife. Large number of visitors at natural sites can destroy vegetation via trampling and raising the risk of erosion. Moreover, the noise and disturbance accompanying touristic activity can alter breeding, feeding, nesting, hunting patterns of animals.

Thus, it is recommended to add joint actions to develop harmonized codes of practices or guides on how biodiversity can be preserved through touristic services and how to adopt touristic area planning controls to protect key biodiversity sites in cooperation with touristic companies, public cultural and conservation institutes. The International Tourism Partnership guidance contains best practices on how to design and site touristic facilities that do not disrupt the environment – this should be widely used during the planned projects. Also, national biodiversity targets and considerations present in national biodiversity strategies should be harmonized and incorporated into national or regional touristic strategies and action plans.

It is suggested to develop and adopt joint environmental management practices (following circularity principles) to prevent waste generation, to treat, to select or dispose waste in touristic facilities. It is also recommended to add joint action that aim at incentivising touristic companies to adopt sustainable purchasing schemes that ensure the procurement of environmentally friendly cleaning products, reusable, recyclable, composable materials from reliable sources. The adoption of tour group or visitor control measures are also suggested to minimize disturbance and degradation.

It is also suggested to put greater emphasis not only on the development of infrastructure related to water tourism, but on the elaboration of joint strategies and plans for environmentally conscious water-based touristic activities. As these activities (like trekking routes on water, observing aquatic birds, boat trips) have great potential to positively influence biodiversity conservation, visitors' awareness on local ecosystems and regional development.

PO 4 (ii) does not contain actions or planned projects that will have negative effect on biodiversity. Only during the infrastructure development and construction activities planned, the same negative effects on biodiversity and suggestions needs to be taken into account as detailed in PO 1 (iii).

#### Priority 5. Cooperating border region

##### ISO 1 – a better cooperation governance

Projects under ISO 1 (b) are not relevant from the perspective of biodiversity, flora and fauna.

ISO 1 (c) contains projects and actions that promote the organisation of various cultural, sport festivals and events which also has the same threat on biodiversity as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities.

## 9.5 Potential effects on Natura 2000 and other nature protected areas

#### Priority 1. Competitive border region

##### PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Infrastructural developments and constructions foreseen in PO 1 (iii) will have similar negative impacts on Natura 2000 territories as detailed in 9.4. However, the 'no deterioration' concept is more pronounced

and needs to have priority when planning any development or construction activity near Natura 2000 sites (Croatian protected areas and Ekološka mreža Natura 2000: <https://www.bioportal.hr/gis/>; Hungarian protected areas: [https://www.eea.europa.eu/soer/2010/countries/hu/nature-protection-and-biodiversity-state/bd3.jpg/image\\_view\\_fullscreen](https://www.eea.europa.eu/soer/2010/countries/hu/nature-protection-and-biodiversity-state/bd3.jpg/image_view_fullscreen); Natura 2000 areas in Croatia and Hungary can be searched: <https://natura2000.eea.europa.eu/>). An appropriate, thorough impact assessment needs to be carried out as well before any, granted development work.

## Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) will have similar negative effects as detailed in 9.4. But the same caution and the application of no deterioration principle needs to be taken into account as discussed in PO 1 (iii) when low emission technologies, e-mobility, renewable energy utilisation and related installations are being considered near Natura 2000 sites.

PO 2 (iv) will have positive impact on Natura 2000 sites since the projects and actions listed aim to protect and improve natural habitats, connectivity of habitats, endangered species and fight against invasive species, plus to increase resilience of protected areas against natural disasters or to the effects of climate change.

Although, not mentioning Natura 2000 sites in PO 2 (iv) projects or actions is a shortcoming that needs to be addressed. The CBC area is especially rich in Natura 2000 protected areas, not only the Mura-Drava-Danube Transboundary Biosphere Reserve, but Mecsek near Pécs, north and south Zselic, Forest of Szenta in Hungary or Biogora Kilnicko gorje, Ribnjak Našice, Papuk in Croatia are just as important, and they all are impacted by and exposed to the negative effects of climate change. Therefore, it is suggested that the joint conservation actions planned in the Hungary-Croatia Programme should integrate and mention the development of harmonized dedicated conservation plans with clear targets for Natura 2000 areas in both countries' target region – in case they are absent. Based on the data of European Biodiversity Information System, 45% of both species and habitats conservation status is bad or poor in Croatia and 48% of them are unknown. While protected forests are in good shape in the country, but the status of grassland is poor or bad. On the other hand, 65% of species and 85% of habitats conservation status can be considered poor or bad in Hungary. Mainly protected forests and grasslands can be found in the Hungarian target area and their status is rather unsatisfactory. This not only justifies the relevance of Natura 2000 conservation plan elaboration, but also shows the necessity to harmonize the plans and their objectives between the two countries. These should be complemented by joint monitoring and evaluation systems to map and assess territories of unknown status. E.g. it is recommended to have joint actions that aim at the status mapping of regional pollinators by developing a harmonized monitoring system with a sampling network cross-border.

It is recommended to add joint actions focusing on improving the understanding and cooperation between Natura 2000 site management actors and other sectors (forestry, agriculture, tourism, fisheries) and to embed Natura 2000 conservation targets into sectoral strategies and plans. In addition to this, legally binding, cross border regulations should be explored and elaborated between the countries to achieve conservation plans (e.g. harmonized regulation of relevant special Natura 2000 land use rules for arable and grasslands, education of Natura 2000 landowners on best practices for forest, arable and grassland management).



It is also proposed to include joint actions aiming at raising investments, harmonising funds cross-border (e.g. co-financing LIFE program) or at making use of other EU funds (Horizon Europe projects, Biodiversa+ Partnership) to build capacity or conduct relevant research.

It is suggested to add cooperation actions that map and assess the socio-economic benefits of Natura 2000 sites together with wide range of stakeholders. The economic value and cost-saving nature of these territories should be estimated. This can be calculated by taking into account their carbon storage capacity, the synergies of biodiversity with climate change mitigation and adaptation, protection of ecosystems (forest, wetlands, grasslands), reduction in damage caused by extreme weather or natural disasters, maintenance of wide range of protected plants and animals, pollinating insects important for agriculture, food provision and security, or water purification. Thus, it is suggested to add joint action to analyse the costs and benefits of Natura 2000 territories.

As written in Chapter 9.4 at Priority 2, the existing hydropower plants cause extremely low waters in some river stretches in certain periods, while floods during short peak periods (when the turbines operate), create unbalanced circumstances for riverine species and habitats. Moreover, the hydropower plants have a negative effect on lateral connectivity as well (blocking fish migration or making it more difficult) and thus, harm the most important function of the Natura 2000 (i.e., creating and maintaining an ecological network). It is suggested not to plan additional hydropower plants on Mura and Drava rivers until further progress has been made to improve existing hydropower systems/technologies to be more environmentally friendly and to decrease the damage to aquatic ecosystems.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

The construction of road infrastructure is a labor-intensive process that disrupts the habitats in the area during the construction works. Temporary material storage will also take place during construction, leading to the degradation of certain habitats. The habitats within the established routes will undergo complete transformation, while those within a few meters of it will degrade.

As from data in chapter 5.5 Environment (Natura 2000) the planned route Sárok-Kneževo route is not in Natura 2000 nor to its vicinity. The planned Zákány-Gotalovo road route is inside Natura 2000 area. However, as this route is planned as a local road and given the short distance between the two settlements, no significant impact on the Natura 2000 is expected. Nevertheless, it is recommended to avoid construction activities during nesting period. Mura Bridge is also planned inside Natura 2000 territory.

The investments and associated auxiliary uses will mostly affect low-importance agricultural fields from a conservation perspective, and to a lesser extent, moderately natural habitats such as grasslands and willow groves. When dealing with these affected semi-natural habitats, it's recommended to avoid any disturbances in the proximity of the route and concentrate the disruptions away from it. The utilization of wetland habitats, grasslands, and forests should be minimized.

For the road infrastructure projects planned within PO 3 (ii), appropriate environmental impact assessment must be carried out before any, granted development work.

Priority 4. Inclusive border region

PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (vi) might have similar negative effects on Natura 2000 sites as detailed in 9.4. However, positive impacts can be achieved for tourism as well, since these territories enhance the attractiveness of the target region, so people naturally want to enjoy these sites.

Natura 2000 sites can be important for branding local and regional touristic attractions or products – thus, the protection and conservation of these territories become more significant as they contribute to local economic developments, alleviating poverty, attracting inward investments, enhancing local image and quality of life. Building on this, it is suggested to highlight joint actions, programs that support the education of local touristic companies, nature parks, other stakeholders on the general content and implications of Natura 2000 directives, and national conservation plans. It is also important to put in place a joint management programme for ecotourist activity at Natura 2000 sites between the two countries that integrates the joint Natura 2000 conservation plans guidance measures and complies with the national biodiversity strategies.

It is recommended to separately have joint actions to educate and train visitors and local residents on the ideal desired state of Natura 2000 sites in order to ensure the protection and sustainable use of these territories.

PO 4 (ii) does not contain actions or planned projects that will have negative effect on Natura 2000 sites. Only during the infrastructure development and construction activities planned, the same negative effects and suggestions needs to be taken into account as detailed in PO 1 (iii).

Priority 5. Cooperating border region

ISO 1 – a better cooperation governance

Action 1: ISO 1 (b) projects are not relevant from the perspective of Natura 2000 territories.

Action 2: ISO 1 I contains projects and actions that promote the organisation of various cultural, sport festivals and events which also has the same threat on Natura 2000 sites as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities.

However, it must be highlighted that special event permits might be required respecting the 'no deterioration principle' in accordance with environmental regulations if cultural, sport events and festivals are planned near or at Natura 2000 sites – as these events might alter terrain, environment with the appearance of artificial, alien temporary structures. It is also suggested that planned events expecting large number of visitors through multiple days should not be allowed or granted permission at Natura 2000 sites since the noise and music might cause serious disturbance for wildlife.

## 9.6 Potential effects on climate

Priority 1. Competitive border region

PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Actions listed in PO 1 (iii) that include infrastructure development and construction activities may have negative impacts on climate. The processes at construction such as the usage of fossil fuel run heavy

machinery, inappropriate management of waste, and transportation leads to greenhouse gas emissions. Compared to global warming patterns, these small-scale constructions might have negligible effects.

Still, the proposed protective actions regarding the prevention of water pollution, the control of runoff or appropriate storage and disposal of construction materials detailed in Chapter 10. should be applied here as well.

It is also suggested to include sustainability/climate-positive expectations from SMEs in accordance with the targets of national climate change strategies in the selection criteria in order to ensure that the products and services innovated or improved during the planned projects and actions meet circular economy/organic/agroecological principles. Therefore, contributing to local adaptations in agriculture, industry or service sector to climate change and the products are produced in ways that do not contribute to GHG emissions.

### Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) will have positive effects on the climate since the actions aimed at renovating and retrofitting of buildings with net-zero or energy efficient options, help the transition to renewable energy sources, e-mobility, and will contribute to cut GHG emissions in the region, decrease carbon footprint or offsetting emissions released during constructions.

The PO 2 (i) should be in harmony with PO 2 (iv) in relation to green infrastructure development in urban areas. This action is just as important with regards to achieving net-zero buildings since the efficiency of these retrofitted buildings might be enhanced and the resilience of urban areas to combat climate change by improving local microclimates and ensure the long-term well-being of inhabitants. Not only the number of trees, parks, green surfaces should be increased, but the application of biophilic design (living walls, roof coverings, green facades) as described in 9.2. should be incorporated into the renovation of the building and sustainable mobility solutions as they decrease energy consumption through vegetative climatic effects, reduce urban heat island effect, attenuate noise, provide better wind protection, and home for pollinators, cleanse the air from pollutants and they are renewable, and recyclable. Natural water retention measures and rainwater harvesting solutions should also be applied and made popular among the households via campaigns and promoting best practices.

However, it is important to take into account that the rebound effect might occur with low-emission buildings, which means that the residents might have a relaxing, comforting feeling that they do not contribute to GHG emissions, so they end up using more energy.

It is also suggested to add joint actions to develop cross-border plans on how to combine mainly solar and geothermal, energy utilisations in order to avoid the dependence on single energy sources.

PO 2 (iv) will have positive effects on the climate as the planned projects involving biodiversity preservation, improvement of green infrastructure, restoration of habitats contributes to the absorption of emissions (CO<sub>2</sub>) and act as carbon sinks. If they become healthy and well-functioning due to actions planned that will increase the resilience, adaptive capacity against extremities, disasters and will control the local climate.

### Priority 3. Connected border region

PO 3 – a more connected Europe by enhancing mobility

Transport is a significant source of greenhouse gases (GHG) which are produced by fossil fuel combustion in vehicles engines. According to [EEA/PUBL/2021/066](#) (EU NIR 2021), sector Transport (1A3) accounted CO<sub>2</sub> emission for 23.2%, CH<sub>4</sub> for 0.03%, N<sub>2</sub>O for 0.25% of total GHG emissions in 2019<sup>[1]</sup> (without LULUCF). Between 1990 and 2019, GHG emissions from sector Transport increased by 20% in the EU-KP. GHG emissions from sector Transport are absolutely dominated by GHG emissions from road traffic.

As it is stated in the Hungary-Croatia Programme, new local road connections in CBC area aim to improve cross-border connection, to shorten time travel and to generate time savings in cross-border mobility. The result is a reduction in fossil fuel consumption in relation to the “no project” scenario and thus reduction of GHG emissions.

Concerning climate, the asphalt pavement of roads should be taken into consideration, with lengths varying between 1 and 2 km with regard to the trail variants. The asphalt layer increases the surface temperature but in regard road infrastructure projects planned within PO 3 (ii) . Effects are expected to be negligible due to the small extent of the asphalt sections.

In accordance with the EU and national policies, due care, good engineering practice and EC, EIB guidelines for financing, etc. it can be expected that the transport infrastructure in CBC area will be planned and built resistant to climate change.

<sup>[1]</sup> Data for the year 2019 are presented, as in year 2020 the global COVID-19 pandemic caused reduced economic and social activities and mobility.

#### Priority 4. Inclusive border region

##### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

Actions related to tourism development in PO 4 (vi) should be considered with care as they might have negative effects on the climate. Heightened touristic activity will lead to GHG and ozone depleting substance emissions due to transportation, waste disposals and consumption of goods and services. Although actions against overtourism are welcome, but it is suggested to include joint action to harmonize sustainable touristic activities cross border and exchange of good practices that includes acceptable limits in emissions, measurable indicators to monitor changes in emissions, limits in number of vehicles and visitors coupled with limitations on fossil fuel run vehicles. Building on this, it is important to have joint educational actions of visitors, local residents, service providers on how to comply with the requirements and limitations set jointly in order to achieve acceptance, prepare visitors beforehand and pre-empt the deterioration of natural and cultural sites and uncontrolled emissions.

It is suggested to have joint actions to develop common food waste standards cross-border and incentives to procure organic products and produce from local organic or sustainable farms.

It is suggested to harmonize PO 4 (vi) with PO 2 (i) and add joint actions to improve touristic attractions, buildings, facilities to become energy efficient utilising local renewable energy resources like geothermal or solar energy.

PO 4 (ii) does not contain actions or planned projects that will have negative effect on climate. Only during the infrastructure development and construction activities planned, the same negative effects and suggestions needs to be taken into account as detailed in PO 1 (iii). But it is proposed to add sustainability and environmental education topics to the actions that aim to integrate marginalized groups in order to meet the principles of the selection criteria and to ensure the consistency of POs.

Priority 5 Cooperating border region of the Programme

ISO 1 – a better cooperation governance

Action 1: ISO 1 (b) projects are not relevant from the perspective of climate.

Action 2: ISO 1 (c) contains projects and actions that promote the organisation of various cultural, sport festivals and events which also have the same threat on climate as detailed in case of PO 4 (vi) as these events contribute to increased touristic activities.

## 9.7 Potential effects on built environment, settlement surroundings, cultural- and archaeological heritage

Priority 1. Competitive border region

PO 1 – a smarter Europe by promoting innovative and smart economic transformation

PO 1 (iii) could have a negative effect on the landscape surrounding settlements in the CBC area. Scaling efficiency does not always come with the preservation nor renovation of the historically built environment thus transforming the image of settlements and their surroundings all of which may result in losing cultural- and archaeological heritage. Besides establishing conditions for SMEs to enter international markets by infrastructural developments often reshape landscapes and can have negative effects on both traditional and conventional ways of manufacturing, farming and other artisanal works.

However, by having more jobs especially in rural areas helps to elevate living standards – people have more to spend on their environment (homes, gardens etc.) – and to gain income for municipalities who can fulfil more of their economically non feasible activities related to preserving cultural heritage such as renovation of the traditional built environment and the protection of the landscape.

Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) promotes energy efficiency and the reduction of greenhouse gas emissions, thus creating a space for the built infrastructure serving innovative green solutions, which often cause quick and visible change in the landscape surrounding settlements especially in rural areas.

On the other hand, in less developed areas insulation of homes and public institutions is lacking behind causing inefficient use of resources, therefore it is crucial that the Hungary-Croatia Programme intends to improve energy efficiency specifically through this action. Moreover, practices in reducing greenhouse emissions for remote locations offer off-grid systems (e.g. solar panels, household wind farms) doing less harm in terms of built environment and the overall picture of settlements by helping in the protection of natural surroundings, lowering demand for energy gained from forestry and other fossil energy sources. It is important to increase energy efficiency with not only on the production side, but among the consumers as well, with attitude changing programmes excess energy usage can be avoided.

Type of actions in PO 2 (iv) will mostly have positive effects on the built environment, cultural- and archaeological heritage as they try to prevent and mitigate natural and human-induced disasters and reduce the impact of climate change. Disasters bring instability and unexpected changes to build environment through deterioration regarding cultural heritage (e.g. floods, bushfires, landslides) that cause economic hardship, loss living space and homes. In terms of subsidence affecting ground cables

and pipes climate change poses a great threat to settlements built on clay dominant soil, in order to prevent such cases of physical and economic degradation planned actions are desired. Therefore, joint programmes that aim to prevent and mitigate the effects of climate change and disasters on buildings and settlement surroundings enhance resilience by a decreasing risk of floods, heatwaves (insulation, shading and cooling) and other extreme weather events while also having positive impact on the durability and liveability of civil and cultural buildings, settlements.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

The construction's impact from a landscape protection perspective generally causes temporary changes, but it can also have permanent effects. The construction of roads involves minor alterations to the terrain, creating cuttings and embankments, and temporary disruptions to the surface within the expropriation area. The disturbances and land use associated with changes in terrain, the need for construction staging areas, and the disposal of waste materials can extend beyond the route itself. The most significant alteration to the landscape during road construction is the visual presence of construction machinery, yet this impact is temporary and easily tolerable. During operation, the presence of the constructed facility resulting from the establishment (occupation of space), its aesthetic appearance, and its fragmenting effect on the landscape shape the scenery.

Road infrastructure routes planned within PO 3 (ii) are not in collision with protected cultural properties. Nevertheless, during the preparation of the routes respective authorities must be consulted, and plans must be developed according to national legislation.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

Due to the economical differences detected between regions of the CBC area there are several issues in the field of educational services. By enhancing quality of learning, distance and online education PO 4 (ii) will have a positive effect on the level of awareness in terms of preserving cultural heritage thus strengthening communities. Also education builds resilience by serving quality work to the local economy that makes the elevation of living standards possible thus preventing depopulation that otherwise results in degradation of built environment and loss of cultural value.

PO 4 (vi) enhances the role of culture and focuses on renovation and restoration of cultural heritage sites. Built environment and infrastructure will benefit from these types of actions while having positive economic and social effects.

On the other hand construction of new buildings, facilities and utilities for touristic purposes change tendencies in land use at both urban and rural areas. It may also result in the overburdening of the surrounding infrastructure creating discrepancies between values represented by the built environment and cultural- and archaeological heritage destinations. Tourism can endanger vernacular technology, and traditional constructions simply may vanish, giving space to modern buildings eager to supply demand for accommodation establishments. Furthermore, there is the risk of overuse and the degradation of quality at cultural heritage settlements and archaeological heritage sites in form of illegal touristic constructions, pollution, over-accelerated and uncontrolled urbanisation.

Moreover, it is common knowledge that any artificially produced light entering an area where it was not actually intended is designed to be considered as light pollution. Light pollution goes hand-in-hand with the construction and renovation of the built environment, Croatia and Hungary being no exception. Thus, infrastructural developments facilitating access to different tourist destinations and new locations

– construction investments driven by tourism (e.g. lighting of car parks, catering establishments, open-air exhibitions etc.) – are expected to cause light pollution in the area. Therefore, care must be taken to position the luminaires correctly and to direct light. The usage of high luminous flux sources should be avoided in all cases. In addition, measures should be established in terms of timely lighting, e.g. in the case of tourist attractions, buildings that do not perform a night function, the duration of their illumination shall be determined to the extent necessary to avoid any unnecessary pollutions throughout the night. Last but not least it is recommended to choose the right colour temperature for the light in the luminaires keeping in mind that extensive emission of blue light is harmful to both humans and insects.

#### Priority 5. Cooperating border region

##### ISO 1 – a better cooperation governance

ISO 1 (b) enhances efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles in border region is irrelevant in terms of built environment.

ISO 1 (c) aims to build up mutual trust may have slight positive effects in terms of encouraging citizens in organising events and forums to display traditions also in terms of built environment, emphasising preservation of cultural heritage sites thus putting socio-political pressure on administrative and legislative local bodies to act accordingly if needed.

## 9.8 Potential effects on human health, and lifestyle

#### Priority 1. Competitive border region

##### PO 1 – a smarter Europe by promoting innovative and smart economic transformation

PO 1 (iii) enhances sustainable growth and competitiveness of SMEs and job creation in SMEs which may result in undesired pollution in form of increased CO<sub>2</sub> emissions. In rural regions often used for recreational activities industrial development could change life of locals significantly by increasing light and noise pollution levels even if all existing regulations, aimed at restricting pollution, are followed. On the other hand, at the same time small scale investments are needed to help impoverished regions in order to raise living standards and bringing some social and economic vividness.

Therefore, it is crucial to put an emphasis on smart economic transformation which allows remote locations and underdeveloped areas to be incorporated into the economic circulation without sudden urbanisation that brings undesired change in the way of living.

#### Priority 2. Greener and low-carbon border region

##### PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

Lower carbon emissions and energy transformation in form of energy efficiency and cleaner sources will have great positive effects on health promoted by PO 2 (i). In underdeveloped regions insulation of private and public buildings can be severely obsolete or simply non-existent, therefore any measure that aims to mitigate this issue thus lifts up living standards is much welcome. Besides cities and the most remote locations are both subject to all kinds of pollution (e.g. plastic, soil, air) can be solved by

promoting circular economy aiming to decrease the amount of thrown away tools and devices and leaving less waste behind that in the end harm human health.

Climate change poses a serious threat to human health and security by destabilising natural systems. PO 2 (iv) aims to mitigate its effects as much as possible by building resilience. The ability to adapt to extreme weather conditions is going to be crucial in the upcoming decades to ensure food security and safety and decrease the number of people who will be affected by heat waves. Also there is a greater risk of floods, bushfires, landslides etc. that directly threat human life and livelihood. Investments in these fields are vital for human health and lifestyle as well as the state of environmental services.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

The construction of new roads does not have a direct impact on human health. However, thanks to the developments, it will be possible to reach border towns using shorter routes, resulting in reduced emissions of pollutants and improved air quality. The shorter travel time will also contribute to an improvement in people's quality of life.

The primary noise sources during construction are the delivery of construction materials (transport vehicles and material handling machinery) and on-site construction activities (earthmoving machinery, compacting equipment, construction machinery, tools). Noise emissions from the machinery and equipment used during construction, as well as the overall environmental noise from construction, can only be estimated at this current planning phase based on literature data, and it is advisable to request organizational plan and the precise list of machinery from the future Beneficiaries within the call. The permissible equivalent continuous noise level from construction work is within limits. Construction activities are planned only during daylight hours; nighttime work is not expected.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

PO 4 (ii) intends to support inclusiveness and quality services in education, making people more conscious about their lifestyle. Also by opening opportunities for lifelong learning and on-line education through PO 4 (ii) citizens even at remote locations can gain knowledge in order to be able to get paying jobs elevating their living standards meaning longer and healthier lives. However, adult education and online learning have a lower efficiency therefore, besides being indirect, the positive effect of this action on human health is smaller.

Under PO 4 (vi) tourism has extremely important potential in the improvement of the economic and social status of the cross-border area. Through direct benefits in increased local income and number of workplaces it can contribute to fighting poverty and allowing the most vulnerable social groups to increase their health-related expenditures. Cross-border and international tourism also has a slight negative potential on the health of local communities through exposure to diseases transmissible from human to human.



Priority 5. Cooperating border region

ISO 1 – a better cooperation governance

Institutional cooperation under ISO 1 (b) enhances efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles in border regions, therefore having planned effects in various areas but have only narrow and/or very indirect effect on human health.

Engaging citizens in cultural exchange from both countries participating in the Hungary-Croatia Programme helps to build mutual trust under ISO 1 (c) thus, besides having desired effects on cooperation, has slight positive effects on lifestyle. Inhabitants of the Hungary-Croatia Programme area is more likely to travel across the border for recreation when they feel safe while being accommodated by another nation if both are aware of the cultural differences or even understands the other language.

## 9.9 Potential effects on environment consciousness

Priority 1. Competitive border region

PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Although actions listed under PO 1 (iii) that include infrastructure development and construction activities might have negative impact on the field examined, research and innovation activities and initiatives promoting sustainable joint product, technology and service development can enhance environmental consciousness in the Hungary-Croatia Programme area. Soft actions under Priority 1, such as trainings and seminars for SMEs to improve their knowledge on smart, innovative green solutions could provide ideas for further development. Moreover, targeted trainings and awareness-raising campaigns to promote the use of renewable energy sources to reach competitiveness will also have positive effects on environmental consciousness.

Nevertheless, the small-scale infrastructural investments typically imply the usage of heavy machinery causing greenhouse gas emissions. We suggest applying the air quality control plan and waste disposal measures detailed in 9.2. here as well. The inclusion of climate-positive and sustainability expectations of SMEs in the selection criteria is also suggested to ensure that the products and services innovated or improved truly meet the smart transition goals and contribute to the increase of environmental consciousness.

Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

PO 2 (i) will have positive effect on the examined field. Environmental consciousness will directly be improved by the joint education, awareness raising and knowledge sharing activities planned under this priority.

Activities under PO 2 (i) will help the transition to renewable energy sources, resulting in the decrease of GHG emissions and the carbon footprint of SMEs, as well as the transformation of the society to be more energy and environmentally conscious. It should be not forgotten that, when developing green infrastructure, the two SOs under PO 2 shall be in harmony.

The other constructive element of the Hungary-Croatia Programme is the specific focus on forming the attitude of the general public. In the framework of the activities under PO 2 (iv), various actors of the society will be informed about climate change, the circular economy and environmentally conscious solutions. The planned actions under PO 2 (iv) will place great emphasis on the topics of biodiversity preservation, improvement of green infrastructure, leading directly to the rise of environmental awareness.

The "Fűts okosan!" ('Heat smartly') campaign should be continued, and broadened in Croatia, in order to decrease the emissions from household heating by encouraging for using dry firewood that originates from sustainable forest management (e.g., continuous cover forestry), use less lignite and coal, and do not use any household waste for heating.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

Road infrastructure developments themselves do not directly contribute to promoting an environmentally conscious lifestyle. However, by reducing travel time between settlements, road improvements lead to a reduction in harmful emissions from transportation, which in turn has a positive impact on the environment.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

While social innovation and inclusion interventions have no direct impact on environmental consciousness, the promotion of sustainable means of tourism may have positive effects on both service providers and tourists. The programme specifically includes trainings for stakeholders of the tourism sector on topics associated with environmental sustainability, as well as studies and action plans exploring sustainable forms of tourism valorisation of the natural environment. The most positive elements under PO 4 (vi) are the actions related to the promotion of green tourism and environmentally friendly destination management. As a result of the COVID-19 pandemic, close-to-nature tourism got more popular, therefore the Hungary-Croatia Programme will support initiatives related to the improvement of green mobility accessibility, such as the development of cycling paths, with particular regard to the existing international routes of EuroVelo.

The promotion of close-to-nature tourism might also have negative consequences; for the sake of sustainable tourism, the tourists must respect the environment, with particular regard to the Transboundary Biosphere Reserve located in the cross-border area. Waste management and the operation of supplementary services in the area of the attraction must be regulated in favour of nature.

The actions against overtourism and the awareness raising campaigns on sustainable tourism are welcome. PO 4 (ii) attempts to improve equal access to inclusive and quality services in education, training and lifelong learning through developing accessible infrastructure, including by fostering resilience for distance and on-line education and training. The related actions that will be supported might have a positive effect on environmental consciousness, as education, the transfer of good practices and the exchange of knowledge might broaden the horizon of students, pupils, etc. It is suggested to include the presentation of environmentally friendly aspects in each educational activity, so that participants enriched with expertise could carry out their future activities in an environmentally conscious manner.

During the infrastructure development and construction activities planned, the same negative effects and suggestions needs to be taken into account as detailed in 9.6, under PO 1 (iii).

Priority 5. Cooperating border region

ISO 1 – a better cooperation governance

Institutional cooperation under ISO 1 (b) is planned in various thematic areas, including those focusing on energy efficiency and renewable energy sources. Interventions in this field have the potential to raise the environmental awareness of local communities.

P2P actions under ISO 1 (c) can also serve as a platform for the transfer of good practices related to environmental consciousness. Although cultural festivals and sporting events can have a negative impact on the environment, at the same time they can all contribute to the development of environmental awareness through the proper communication and the promotion and use of appropriate recycled materials.

## 9.10 Potential effects on emerging environmental conflicts and potential problems, and on the escalation of existing problems

Priority 1. Competitive border region

PO 1 – a smarter Europe by promoting innovative and smart economic transformation

Infrastructure development and construction works are potential tension-increasing factors from an environmental protection point of view. As highlighted in the previous Chapters, investments related to this priority have a number of negative environmental impacts, including the generation of non-recyclable waste, the emissions from transportation and noise pollution. However, the soft actions under this PO, such as (preferably online) trainings, events and the involvement of business support and R&D organisations serve less as a basis for potential conflicts. Regarding innovation, initiatives promoting smart economic transformation must not give rise to the escalation of existing problems and conflicts either.

Encouraging SMEs to be environmentally conscious shall be a target action under this priority, therefore it is suggested to include a criterion regarding natural asset protection in the future calls for proposals.

Priority 2. Greener and low-carbon border region

PO 2 – a greener, low-carbon Europe by promoting clean and fair energy transition, green and blue investment, the circular economy, climate adaptation and risk prevention and management

Regarding green infrastructure development, the possible negative effects on the environment explained in the previous paragraph (Priority 1) can be interpreted under PO 1 - SO (i) as well. Actions supporting the clean and fair energy transition and energy efficiency can provoke conflict between the companies and the energy suppliers due to the decrease in demand. Switching to renewable energy sources might be costly but at the same time it is a forward-looking decision. In line with the climate and decarbonisation goals, the transition should be an interest of every actor in the region, as the lag and the launch of environmentally damaging solutions will in any event lead to conflict among consumers, producers or local and regional authorities.

It shall be highlighted, that although the CBC area is characterised by favourable environmental conditions, the results of climate change; the increase of summer drought as well as river floods especially in the area of the Drava and Mura rivers might create a hostile atmosphere. Human factors are also playing an increasing role in the development of catastrophic events (e.g. illegal logging, forest fires, communal pollution of rivers, etc.). In relation to these impacts, the Programme shall improve the awareness and attitudes of local stakeholders. High fossil fuel dependency can be detected in the region as well: in both countries, over 2/3 of their total energy supply is currently based on fossil energy sources. The transition may result in conflicts however at the same time it is essential and expected from both countries. The waste management situation in the counties located in the border area is also a potential source of conflict, therefore, to avoid the tension, the Hungary-Croatia Programme shall support a wide range of environmental and green transition projects.

It should be emphasised, that due to its limited financial resources, the Hungary-Croatia Programme cannot provide significant contributions to mitigation and adaptation to climate change, however it can provide policies supporting more effective and coordinated efforts of the stakeholders.

PO4 (iv) of the Hungary-Croatia Programme offers many options for conflict resolution. As the majority of buildings in the Hungary-Croatia Programme area do not meet the technical regulations nor the energy efficiency principles, the organisation of a number of awareness-raising programmes promoting renewable energy sources, supported by the Hungary-Croatia Programme is proposed for various age groups and actors of the society. This will contribute to the decrease of environmental conflicts through the planned projects involving biodiversity preservation, the improvement of green infrastructure, the restoration of habitats contributing to the absorption of emissions (CO<sub>2</sub>). If the actions will result in the increase of capacity against extremities and disasters as well as the region will be able to control the local climate, the tendency of conflicts shall decrease.

### Priority 3. Connected border region

#### PO 3 – a more connected Europe through enhancing mobility

The planned road infrastructure developments are expected to have positive economic and social impact. They will improve direct connections and accessibility between the two countries, reduce internal migration rates, which is currently a significant social issue in certain border region communities.

### Priority 4. Inclusive border region

#### PO 4 – a more social and inclusive Europe implementing the European Pillar of Social Rights

Increasing tourism activity and preserving natural assets are generally controversial priorities. The high risk of over-exploitation of the natural environment must be taken into account and the funding decisions must be adequately offset by the application of the sustainability criteria, otherwise tourism development activities will lead to over-consumption and deterioration of natural resources in the long term. Infrastructural developments targeting touristic activities potentially threaten the biodiversity, especially in the case of attractions or programmes located close to natural heritage or protected sites. Increased touristic activity and the related visitor traffic, due to the traffic might result in air pollution, water and soil contamination and increased amount of communal waste generated, therefore increased energy consumption. Measures announced against overtourism might lead to conflict as well, however, in order to protect our environment or our health, keeping the determination in mind while evaluating the projects is certainly welcomed.

With regard to PO 4 (ii) targeting the improvement of the quality of education, training and lifelong learning situation in the CBC area, joint educational actions for the general public shall be supported in

order to prepare local residents and all age groups for the transition and to inform them about the sustainable opportunities offered by circular economy. Knowledge and awareness might help to prevent the escalation of conflicts.

As highlighted in previous Chapters, it is suggested to harmonise PO 4 (vi) promoting culture and tourism development with PO 2 (i) targeting energy efficiency and launch joint actions to improve cultural buildings and tourism facilities promoting local renewable energy resources in the possibility for application of which the region abounds.

#### Priority 5. Cooperating border region

##### ISO 1 – a better cooperation governance

Cooperation, conversation and strengthening of cultural and professional links promoted by Action (b) and (c) under ISO 1 generally contribute to solving emerging conflicts and problems. The organisation of cultural and sports events might serve as a platform to transfer good practices on environmental consciousness which can prevent possible conflicts regarding climate change. If sustainability is included in the criteria against funded cooperation projects, these impacts can be especially positive.

## 9.11 Potential effects of the Programme on the interrelationship and cumulative effect of threats to the above factors

Summary table of the potential effects on environmental and socio-economic factors of the CBC area

	Effects on soil	Effects on air	Effects on surface waters and groundwaters	Effects on biodiversity, flora, and fauna	Effects on Natura 2000 territories and other nature protected areas	Effects on climate	Effects on built environment, settlement surroundings, and cultural- and archaeological heritage	Effects on human health and lifestyle	Effects on environment consciousness	Effects on emerging/escalating environmental conflicts and problems
PO 1 (iii) enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments										
PO 2 (i) promoting energy efficiency and reducing greenhouse gas emissions										
PO 2 (iv) promoting climate change adaptation and disaster risk prevention, resilience, taking into account eco-system based approaches										

PO 3 (ii) developing and enhancing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility										
PO 4 (vi) enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation										
PO 4 (ii) improving access to inclusive and quality services in education, training and lifelong learning through developing accessible infrastructure, including by fostering resilience for distance and on-line education and training										
ISO 1 (b) enhance efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles in border regions										
ISO 1 (c) build up mutual trust, in particular by encouraging P2P actions										

Legend:

strong negative effect(s)	weak negative effect(s)	neutral or contrary effect(s)	weak positive effect(s)	strong positive effect(s)
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The Hungary-Croatia Programme does not contain detailed measures, but loosely identifies intervention areas and sets boundary conditions. In the previous subsections (9.1-9.10) we analysed in detail the potential impacts of each selected Hungary-Croatia Programme specific objectives on different environmental elements and categories.

Considering the various infrastructural developments, constructions, renovations planned in PO1 (iii) *enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs, including by productive investments*, and increased consumption of natural resources with accompanying various forms of pollution anticipated due to touristic activities in PO 4 (vi) *enhancing the role of culture and sustainable tourism in economic development, social inclusion and social innovation* and ISO 1 (c) *build up mutual trust, in particular by encouraging P2P actions*, weak negative effects on soil, air, waterbodies, biodiversity, flora and fauna, Natura 2000 and other nature protected areas, and climate can be expected. However, PO 2 (iv) *promoting climate change adaptation and disaster risk prevention, resilience, taking into account ecosystem-based approaches* just as PO 2 (i) *promoting energy efficiency and reducing greenhouse gas emissions*) will have very positive or weak positive effects on air, biodiversity and climate. PO 3 (ii) *developing and enhancing sustainable, climate resilient, intelligent and intermodal national, regional and local mobility, including improved access to TEN-T and cross-border mobility* will have neutral effect on air and climate. Generally, it can be said that PO2 (i) and PO3 (ii) will have contradicting effects since these priorities contain renewable energy resource development actions and road constructions that might have weak negative effects on soil, water, biodiversity, and Natura 2000 territories, but at the same time having weak positive effects as well by contributing to the mitigation of climate change and its pressure on natural resources. The negative and positive effects will even each other out resulting in a neutral effect overall.

PO 4 (ii) *improving access to inclusive and quality services in education, training and lifelong learning through developing accessible infrastructure, including by fostering resilience for distance and on-line education and training*, ISO 1 (b) *enhance efficient public administration by promoting legal and administrative cooperation and cooperation between citizens, civil society actors and institutions, in particular with a view to resolving legal and other obstacles in border regions* are not really relevant in respect to soil, air, waterbodies, biodiversity, flora and fauna, Natura 2000 and other nature protected areas and climate. Also, PO 2 (i) *promoting energy efficiency and reducing greenhouse gas emissions*, however, mentions some small-scale, low-emission infrastructural developments, it will have neutral effects on soil, waterbodies, and Natura 2000 territories.

The presented table above is a summary of the evaluation. If the elements and categories of environmental impacts potentially affected by the 7 selected areas of intervention are analysed by simple mathematical methods (substituting positive and negative impacts with +1 and +2 and -1 and -2, respectively, taking the mixed impacts as zero, and averaging across different categories), we can read informative aggregate results from the diversified correlation system of the multi-element environmental impact assessment:



- Three specific objectives have an impact on all 10 assessed environmental elements: PO 1 (iii) supporting SMEs has an overall negative effect together with PO 4 (vi), however PO 2 (iv) taking measures of climate change has only strong positive effects. Sustainable tourism interventions of PO 4 (vi) besides having negative impacts are showing slight positive effect in two areas as well as PO 1 (iii). Cooperation measures under ISO (b) affect the lowest number of environmental areas (only 1).
- The vast majority of assessed environmental elements are affected by 4 out of 7 specific objectives and each of them is affected by 4 specific objectives at least.
- Considering the average impact on environmental elements, the mostly negative effect is realised by sustainable tourism measures of PO 4 (vi) and interventions for SMEs under PO 1 (iii): apart from joint effects on environment consciousness and separate effects on human health and built environment, while they both have potentially negative impacts on all the other environmental elements.
- PO 2 (i) promoting energy efficiency and reducing greenhouse gas emissions and the planned road infrastructure within PO 3 (ii) have the most mixed effects: strong positive impact on two areas (health, environmental consciousness) and slight similar effect in another (built environment), while having weak negative effects on 6 elements (soil, biodiversity, water, Natura 2000, climate, environmental conflicts).
- The most positive overall impact is expected in case climate change interventions under PO 2 (iv). Cooperation measures of PO 4 (ii) and ISO 1 (b) also have positive overall impact, but they are irrelevant for the majority of environmental elements.
- The environmental elements gaining the most positive effects from the planned interventions are human health, environment consciousness and built environment.

If the effects of the intervention are averaged, the following ranking is obtained:

- PO 2 (iv) Climate change: 2
- PO 4 (ii) Education: 0.2
- ISO 1 (b) Public administration: 0.1
- PO 3 (ii) Mobility: 0.1
- PO 2 (i) Energy: -0.1
- ISO 1 (c) Mutual trust: -0.2
- PO 1 (iii) SMEs and jobs, PO 4 (vi) Sustainable tourism: -0.8

From the above data, it can be seen that the areas of sustainable tourism, mobility, growth of SMEs and job creation are where a potential intervention can most probably violate or jeopardize an environmental aspect. Based on the further development of mutual trust, interventions have a positive impact in general.

## 10 Protective measures

Within this section, our approach follows the focus of the SEA Directive as it is fully applicable for the present Hungary-Croatia Programme.

If there are any measures envisaged to prevent, reduce and as fully as possible offset any significant adverse, unfavourable effects on the environment of implementing the Hungary-Croatia Programme, those shall be listed here together with the identification of those critical programme elements which can have a potentially negative environmental effect despite the measures taken to decrease these effects. The notes are grouped under key environmental areas, following the headings of Chapter 6 of the current SEA.

### Soil

Agricultural activity in the cross-border area plays a vital role, the protection of soil or the minimisation of erosion, deflation and pollution is more than important. Infrastructural activities, constructions are suggested not to be planned on fertile soils especially in counties where the local economy greatly depends on agricultural production.

Joint activities on widespread use and transition to sustainable land use practices, ranging from agroecological, regenerative farming (no till, reduced tillage etc.) to organic agroforestry practices are advised, all of which focus on soil health. Among many activities education of agri-food SMEs is also vital and should focus on learning and sharing best practices, which result in having a more sustainable agriculture that relies its dependence on biodiversity and ecosystem services. Not forgetting the broader society, local citizens and other stakeholders should also learn about alternative ways of consumer behaviour such as "Farm to Fork" initiatives, local agri-food products and other ways of adaptation to climate change that improve the overall well-being while boosting local economies. Actors of the agricultural sector are currently absent from the Hungary-Croatia Programme as they are not included in the main target groups, which is totally unacceptable if the Hungary-Croatia Programme plans to carry out activities concerning land use.

Increased popularity resulting in crowded areas are challenging local waste management systems and threaten soil health. In order to minimize impacts from mismanagement of waste in terms of tourism joint activities are recommended in form of education and training of businesses, local residents, and other parties that have an impact on the prevention of waste generation. Visitors should be informed of the rules before their arrival and during their stay (digital applications, online promotional materials etc.), while also promoting the usage of environmentally sustainable products.

To natural sites crowds and vehicle traffic pose a serious threat, therefore events can only be organised if traffic is limited and kept away as much as possible from the site and precautions have been made to prevent waste pollution.

## Air

Between the two countries joint actions for the creation of common guidelines for SMEs (e.g. handbooks) about best practices at construction sites and other related activities are recommended in order to minimise environmental damage and pollution in respect of national regulations.

To save valuable resources and to prevent unnecessary pollution during developments in terms of SMEs repurposing of underutilised buildings must be considered since it does not require physical construction, nor large-scale land clearing.

Ecosystem based approaches are recommended in various fields of design, paying special attention to the interior and exterior of buildings where green surfaces improve air quality. If enlivened, parks and other green areas also affect air quality through absorbing pollutants from the air. In terms of climate adaptation, cities (esp. Pécs) and even small settlements benefit in terms of climate adaptation from green infrastructure investments by providing nature-based solutions and lessening polluting factors.

Connected border region is promoted through development and improvement of sustainable and climate resilient mobility including development of transport infrastructure i.e. road connections. New road connections should support links between isolated peripheral areas, in order to connect neighbouring communities, to improve and to speed up access to TEN-T and other major road/rail infrastructure, generating time savings in cross-border mobility. Although road traffic is source of air pollution, shortening of travel time in cross-border area will result in a reduction in fossil fuel consumption in relation to a “no project” scenario, and thus reduction of air pollutants emission.

To reduce direct air pollution during construction phase in the vicinity of the road infrastructure planned within PO3 (ii) protective measures must be taken during the construction works to minimize dust emission and dispersion.

## Surface waters and groundwaters

Harmonising regulations related to erosion and sediment control plan mentioned in 9.1. together with a handbook of best practices (Chapter 9.2) are recommended preventing runoffs at construction sites, thus decreasing risk of water pollution.

Large scale water management problems can be solved by involving agricultural fields in water retention as mentioned in Chapter 9.1. These matters are best solved by joint activities that develop harmonized cross-border water retention and storage strategies together with best practices for and provided by farmers with the support of nature conservation and flood prevention experts. In these issues education is vital where stakeholders should realise that regenerative, agroecological practices improve soil structure therefore making it able to limit surface runoff. Furthermore, reconstruction of natural ponds and small reservoirs, construction of

weirs for storage in rivers canals and adequate irrigation-drainage systems also should be known to regulate outflow.

River management also calls for cross-border cooperation where reconstruction of deteriorated river sections and floodplains should be carried out with an ecosystem-based approach. In order to achieve expected outcomes in water management, both countries have to guarantee that no hydropower plant is planned nor will be granted to be constructed in the future on Mura and Drava rivers until further progress has been made to improve existing hydropower systems/technologies to be more environmentally friendly and to decrease the damage to aquatic ecosystems.

Harmonized regulations are expected to be made regarding wastewater discharge (supporting the development of physical and/or biological treatment of wastewater at touristic facilities across both countries).

While putting a greater emphasis on the development of infrastructure related to water tourism, elaboration of joint strategies and plans for environmentally conscious water-based touristic activities should not be forgotten, as well as raising visitors' awareness on local ecosystems before and during activities like trekking routes on water, observing aquatic birds, boat trips which besides can play a vital role in the preservation of natural sites.

To reduce water pollution resulting from the planned road constructions within PO3 (ii) protective measures must be taken to ensure proper drainage of surface waters and the prevention of fuel leakage from construction equipment. To avoid accidental pollution, regular maintenance, washing, and refueling of construction machinery should be carried out at appropriately designated sites, preferably the nearest material sources or asphalt mixing plants.

To protect surface waters, it is *recommended to establish assembly areas*, temporary storage areas, and deposition sites on the protected side of the Mura, ensuring that potential pollutants do not enter the water bodies (Gyurgyánci Creek and Berek Creek). In the hydrogeological "B" protection zone of the Molnári-Mura waterbase, it is necessary to create a paved (waterproof) precipitation drainage ditch.

#### Biodiversity, flora, and fauna

Planned developments should only occur in accordance with relevant national environmental regulations and with special attention and care in regard to protected natural areas like UNESCO Mura-Drava-Danube Transboundary Biosphere Reserve, Natura 2000 territories, national parks or forest reserves, nature parks, regional parks, special reserves, significant landscapes, park-forest, monuments of nature and monuments of park architecture.

For non-protected natural areas, it is essential to develop and harmonise biodiversity compensation plans for activities related to building infrastructure with involvement of conservations experts. One of the most significant wetland areas of Europe is the Mura-Drava-

Danube Transboundary Biosphere Reserve. The CBC area contains significant parts of this reserve at the border region of the two countries, however there was very little mentioned about this site in the planned projects and activities not acknowledging the substantial support behind the Transboundary Biosphere Reserve. It is strongly recommended to include specific actions dedicated solely to this Biosphere Reserve, not only because its unique biodiversity, but because it stretches along the border of both countries thus signifying the importance of cross border cooperation and relations which is the ultimate purpose of Hungary-Croatia Programme.

Education and information of agricultural stakeholders about the environmentally friendly, organic or agroecological practices mentioned in (9.1.) is advised. Usage of shelter belts, preserving landscape features, agroforestry practices, avoidance of synthetic fertilizers, desiccants, chemical pesticides (especially neonicotinoids) are all crucial aspects in the protection of nature which are all closely linked to agriculture. In addition, pollinators should be monitored with a harmonised sampling cross-border network which is beneficial both environmentally and economically.

Evaluation of regional ecosystem services, and creation of data sharing services that realise intersectoral cooperation with all the relevant stakeholders (agriculture, wildlife management etc.) are also needed.

Tourism may result in overuse of natural sites. Thus, it is recommended to add joint actions to develop harmonized codes of practices or guides on how biodiversity can be preserved through touristic services. Environmental management practices (following circularity principles) to prevent waste generation, to treat, to select or dispose waste in touristic facilities is must in terms of nature protection, while not forgetting sustainable purchasing schemes that ensure the procurement of environmentally friendly products. The adoption of tour group or visitor control measures are also suggested to minimise disturbance and degradation. Furthermore, in case of greenfield and built area projects environmental impact assessments must be implemented by Beneficiaries of the relevant projects.

Regarding road infrastrucutre projects planned within PO3 (ii) which affect natural habitats, it is important to preserve these habitats as much as possible by avoiding or minimizing ancillary activities related to the planned constructions (such as material deposition and machinery parking). During the preparation and implementation of the road infrastructural projects, efforts should be made to keep construction activities close to the route, minimizing the area of disturbance.

Natura 2000 territories and other nature protected areas

The CBC area is especially rich in Natura 2000 protected areas, not only the Mura-Drava-Danube TBR, but the Mecsek near Pécs, north and south Zselic, Forest of Szenta or Biogora Kilnicko gorje etc. are just as important and impacted by and exposed to the negative effects of climate change. Therefore, it is suggested that the joint conservation actions planned in the Hungary-Croatia

Programme should integrate and mention the development of harmonized dedicated conservation plans with clear targets for Natura 2000 areas in both countries, otherwise the current state of grasslands and forests continues to be unsatisfactory. In addition, co-operatively established monitoring systems for regional pollinator mapping with cross-border sampling networks are highly needed.

Joint actions aiming at raising investments, harmonising funds cross-border (e.g. co-financing LIFE program) or at making use of other EU funds (Horizon Europe projects, Biodiversa+ Partnership) to build capacity or conduct relevant research are always lacking behind.

Mapping and assessing the socio-economic benefits of Natura 2000 areas together with wide range of stakeholders could raise awareness and assign greater value to these territories such as carbon storage capacity, synergies of biodiversity with climate change mitigation and adaptation etc.

Cross-border programs that support the education of local touristic companies, nature parks, public institutions responsible for the management of nature protected areas and natural values (on the national and regional level) as well as other stakeholders on the general content and implications of Natura 2000 directives, and national conservation plans are vital in the socio-economic judgement of these territories. Besides it is also recommended to have joint actions to educate and train visitors and local residents on the ideal desired state of Natura 2000 sites in order to ensure their protection.

During preparation of project documentation for Mura Bridge, a survey should be conducted in consultation with the National Park Directorate, Međimurje Nature – Public Institution for Nature Protection and wildlife experts to assess whether there are any overwintering small mammals or nesting activities. In developing of project documentation for Mura Bridge, timing of the project and calculation of its duration should consider that planned construction activities affecting the riverbed should occur during the fish's resting period (between December 1 and May 1). Tree and shrub clearance should be carried out outside the nesting season (from late July to early March).

## Climate

Sustainability and climate-positive expectations from SMEs in accordance with the targets of national climate change strategies are recommended to be included in the selection, therefore, contributing to local adaptations in agriculture, industry or service sector to climate change and the products are produced in ways that do not contribute to GHG emissions.

Since the energy efficiency of retrofitted buildings and the resilience of urban areas are essential to combating climate change (local microclimate, long-term well-being) actions ameliorating their current state is just as important as achieving net-zero buildings.

Besides number of trees, the application of biophilic design described in 9.2. many other solutions should be incorporated into the renovation of the building and in the establishment of sustainable

mobility as they decrease energy consumption through vegetative climatic effects, they also have many beneficial effects on the natural and built environment. Preventive measures should take place to mitigate rebound effect in terms of living in sustainable buildings: residents might end up using more energy due to the false notion that they do not contribute to GHG emissions. Besides decreasing dependence on single energy sources, prioritisation of solar and geothermal energy solutions is of high importance as described in 9.6. Cross-border actions are needed in order to monitor changes in emissions which aids in limiting the number of vehicles (esp. those running on fossil fuels) and visitors. This can be achieved by joint educational actions of visitors together with local residents, service providers and other stakeholders.

Regionally produced food waste also demands joint actions to develop common food waste standards and incentives to procure organic products while raising awareness amongst consumers (both visitors and locals) about local organic and sustainable farms.

In order to meet the principles of the selection criteria and to ensure the consistency of POs environmental education should be integrative in terms of marginalised groups.

During planning, preparation, construction and/or implementation of CBC area cooperation and development projects appropriate measures from national strategies related to climate change should be considered. For development of the infrastructure projects, it is recommended to use technical guidance on the climate proofing of infrastructure in the period 2021-2027 (2021/C 373/01).

Built environment, settlement surroundings, cultural- and archaeological heritage

Scaling efficiency for SMEs by building infrastructure potentially could negatively alter the overall image of settlements and culturally traditional landscapes. During any kind of building or renovation, even repurposing of underutilised buildings for SMEs (as earlier suggested) regulations are recommended to be harmonised on a cross-border basis in order to protect cultural heritage settlements and archaeologically important sites.

Interventions for creating jobs elevate living standards which can increase demand for living space that is likely to quickly change the whole landscape. Local authorities together with locals have to establish a strong regulation-based morality for preserving heritage sites even by prohibiting further urbanisation. In addition, municipalities gaining a surplus income from economic improvement should allocate a sufficient amount of their budget for public spaces, heritage sites, and the surroundings of the settlement.

In less developed areas expenditure of households does not allow citizens to properly renovate their homes resulting in degraded homes and public institutions with no or sub-optimal insulation. Actions of the Hungary-Croatia Programme regarding energy efficiency should consider this as a first priority especially in case of remote and/or rural regions. Also, in order to



avoid distortion of the landscape smaller, less visible off-grid solutions are suggested when shifting to renewable energy sources at cultural- and archaeological heritage sites.

Overuse caused by tourism not only degrades natural sites, but also burdens the surrounding infrastructure. By controlling the flow of visitors and awareness raising this negative effect must be mitigated (as earlier suggested). Traditions related to vernacular technologies may simply vanish if demand for modern buildings (being cheaper) is uncontrolled not speaking of illegal tourism related constructions. Therefore, authorities have to harmonise cross-border rules of construction in form of joint action.

In order to mitigate the negative effects of light pollution, unnatural excess of blue light should be evaded as it is harmful to both humans and insects by choosing the right colour temperature for the luminaries at tourist attractions, and for buildings that do not have any function at night. Care must be taken to position the luminaires correctly and to direct light. The usage of high luminous flux sources should be avoided in all cases, while also paying attention to timely lighting, e.g. the duration of illumination of the exterior shall be limited to avoid any unnecessary pollution throughout the night. Horizontally polar lights have a particularly significant effect on insects, since excessive appearance of insects in an area can upset the ecological balance. Thus, the placement of glass buildings near the waterfront should be avoided. The surface of car parks should not be paved with black asphalt, while tourist facilities should not be covered with light-reflecting materials (bright white, red, glass, etc.) – matte building materials are recommended to be used instead.

The long-term and dynamic development of the CBC area is evident through its rich cultural and historical heritage. During planning, preparation, construction and/or implementation of cross-border area cooperation and development projects the protection and/or promotion of cultural heritage should be taken into consideration wherever necessary.

#### Human health and lifestyle

Urbanisation driven by economic upturn, tourism and infrastructure and mobility investments besides lifting living standards also cause pollution (soil, air, noise, water) which eventually can harm human health. Smart growth suggests that urbanisation has to be planned accordingly with international and national regulations and agreements in order to mitigate sudden shifts in everyday life without transition. Therefore, cross-border actions are needed with the scope of preserving recreational sites and the quality of environmental services that ensure the basis for human health even for coming generations.

Also there is a greater risk of floods, bushfires, landslides etc. that directly threat human life and livelihood. Investments and regulations harmonized on international level must take action in building resilience as earlier suggested (esp. soil and water management).

## Environmental consciousness

Research and innovation initiatives promoting sustainable joint production, technology and service development can enhance environmental consciousness in the Hungary-Croatia Programme area by targeted trainings and awareness-raising campaigns to promote the use of renewable energy sources.

Soft actions focusing on SMEs to improve their knowledge green solutions could provide ideas for further development. Applying air quality control plan and waste disposal measures regarding inclusion of climate-positive and sustainability expectations is very well recommended in the selection criteria in terms of raising awareness of stakeholders. Any other regulation or provision compelling and/or driving SMEs to decrease GHG emissions have an overall local social effect if well communicated.

Environmental consciousness is suggested to be further raised by the joint education, awareness raising and knowledge sharing forming the attitude of the general public about climate change, the circular economy and environmentally conscious solutions.

Tourism besides having positive economic effects can serve as a gateway to having a great impact on the conscience of visitors by promoting green tourism, while having positive effect on service providers.

In order to address younger generations cross-border actions are needed for providing first in hand experiences in education (transfer of good practices and the exchange of knowledge), which helps widening the horizon of pupils and members of the local community.

## 11 Assessment of the monitoring system

In the Hungary-Croatia Programme for each output indicator, the measurement units, the milestones and the final targets were listed. In the case of result indicators, in addition to the measurement units, the baseline, the reference year, the final target value and the source of data were provided.

The output and result indicators listed for each priority in the respective tables of Chapter 2 of the Hungary-Croatia Programme are selected from the common output and result indicators for the ERDF and the Cohesion Fund, listed in the annex of the ERDF Regulation. These indicators represent the number of direct outputs (strategies and action plans, pilot actions, jointly developed solutions, participations, etc.) either during the Hungary-Croatia Programme implementation (listed as output indicators) or after the completion of funded projects (listed as result indicators, to measure the multiplication, upscaling or roll-out results).

The tables also include the dimensions and codes for different types of interventions and the rate of climate coefficients and nature coefficients calculated based on the overall compatible ERDF funds per SOs.

Chapter 4 of the Hungary-Croatia Programme appoints the Monitoring Committee (MC) as main body in charge of monitoring and evaluation.

The Hungary-Croatia Programme will continue to use the previous electronic data exchange system between the Beneficiaries and the Programme authorities in accordance with Annex XIV of the CPR. The INTERREG+ IT system will be used as the programmes' application, reporting and monitoring tool.

With regard to environmental aspects, it is recommended to include in the evaluation system and emphasize the key importance of monitoring measures complying with the following key criteria in accordance with Article 10 of the SEA Directive 2001/42/EC:

- Significant environmental effects of the implementation must be detected, realising any unforeseen adverse effects in time to undertake appropriate remedial action.
- Existing monitoring systems may also be used if appropriate, to avoid duplication.

The monitoring system should also meet the following standards:

- Specific: Effects that can be credibly attributed to the interventions should be measured, cleansed from the contribution of other factors.
- Proportional: Operational costs should be moderate and proportional with the practical value.
- Legitimate: It must comply with relevant legislation.
- Coherent: It must be compatible with programme/project monitoring systems applied during implementation.

- Easy to understand: It should be unambiguous both for system operators and beneficiaries, with clearly defined indicators.
- Exact in terms of spatial structure: It should be able to record the location and spatial context of data collected.

The monitoring system should be based primarily on project-level data.

## 12 Non-technical summary

The planning of the Interreg Programme between Hungary and the Republic of Croatia for the period 2021-2027 started in 2019. The Hungary-Croatia Programme plans to organize the development activities of the 2021-2027 period along five priorities, which are the following:

1. Competitive border region
2. Greener and low-carbon border region
3. Connected border region
4. Inclusive border region
5. Cooperating border region

Specific objectives under the five priorities are covering the promotion of innovative and smart economic transformation, clean and fair energy transition, regional and local mobility, green and blue investment, the circular economy, climate adaptation and risk prevention and management.

In order to value the potential environmental benefits and harms caused by the implementation of the Hungary-Croatia Programme a Strategic Environmental Assessment is in progress.

The first step of the assessment is the description of the objectives of the Hungary-Croatia Programme and the analysis of its consistency for identifying contradictions and synergies. Regarding its cohesion to sectoral policies, EU, Hungarian and Croatian development strategies/plans were analysed focusing on common measures and synergies.

For measuring the potential effects of the Hungary-Croatia Programme implementation, the social, economic and environmental state of the CBC area is analysed. Both the Hungarian and Croatian counties are facing rapid depopulation, ageing society, which are changing the structure of the local demography with increased need for social and infrastructural services. The mainly stagnant or the few developing county economies now all facing the consequences of the global pandemic and inflation.

Economic and infrastructural development both have many possibilities in CBC area with the goal of increasing the creation of local value and quality of life, although these interventions should promote sustainable and ecologic standards as well. Regarding the local environment the CBC area has a geographical uniqueness which can be observed in local soils, flora and fauna, which has to be protected to preserve them for the future – this aspect should be involved in every development prospective.

The potential effects of the Hungary-Croatia Programme are analysed focusing on different environmental elements. The effects of the implemented objectives of the Hungary-Croatia Programme could be far more beneficiary for the counties in the CBC area, when the indicated negative environmental effects are considered and avoided. Implementation of the Hungary-

Croatia Programme supports global efforts to combat climate change both in the context of mitigation and adaptation.

Besides the indication of the potential positive and negative effects on environment or on human health, protective measures and recommendations were outlined.