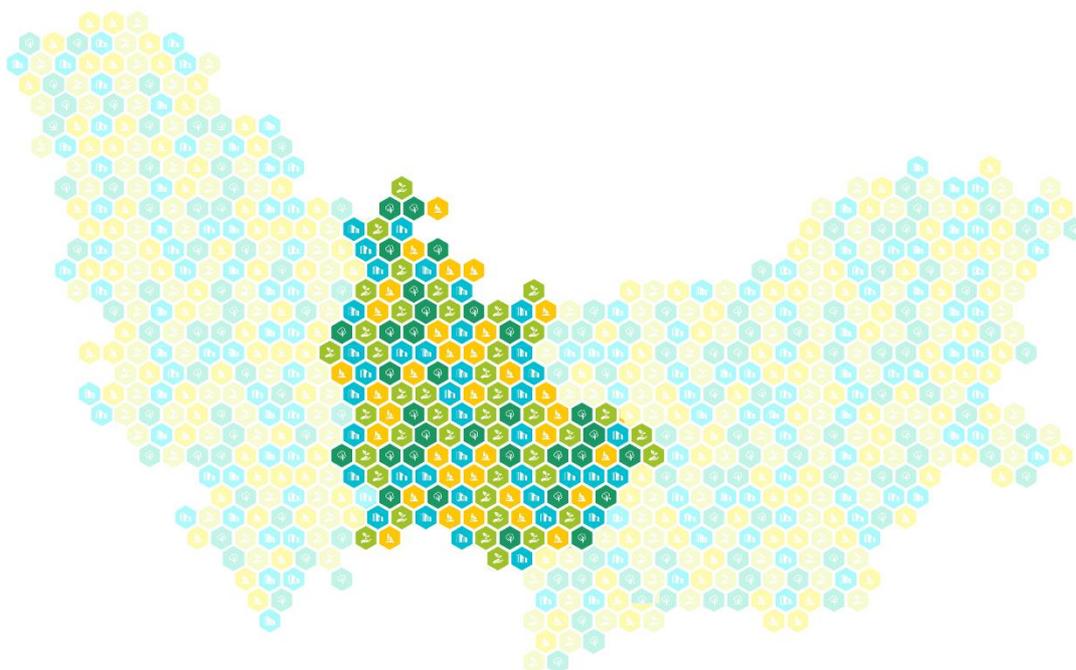




TERRITORIAL STRATEGY FOR INTEGRATED MEASURES

to be financed under the INTERREG - IPA CBC programme 2021 -2027
between the Republic of Bulgaria and the Republic of Serbia

ANALYSIS





Contents

Introduction	1
1 Cross-border area – general description	3
1.1 Programme area and regional structure	3
1.2 Geographical characteristics	4
2 Demographic development	6
2.1 General overview	6
2.2 Population density	8
3 Economic development	10
3.1 Main economic indicators	10
3.2 Gross Domestic Product (GDP)	11
3.3 Gross domestic product (GDP) per capita	12
3.4 Sectoral structure of Bulgarian and Republic of Serbia economies	13
3.5 Foreign Direct Investments (FDI)	16
3.6 Global competitiveness of the national economies	17
3.7 Small and medium-sized enterprises (SMEs)	19
3.8 Tourism sector	19
4 Labour market	24
4.1 Employment rate	24
4.2 Unemployment rate	25
5 Social infrastructure and services	27
5.1 Healthcare	27
5.2 Education	29
5.3 Culture and cultural heritage	32
5.3.1 Intangible cultural heritage	32
5.3.2 Tangible/immovable Cultural heritage	33
5.3.3 Cultural institutions	38
6 Environment	39
6.1 Air	39
6.2 Water	40
6.3 Soil	42
6.4 Protected areas	42
6.5 Climate change	46
6.6 Conclusions on the environment topic	47



7	Technical infrastructure	47
7.1	TEN-T network	47
7.2	Road network	48
7.3	Railway network	51
7.4	EuroVelo - European cycle route network	53
7.5	Border crossings	53
7.6	Airports	54
7.7	Inland waterways	55
7.8	Information and Communication Technologies (ICTs)	57
7.9	Water supply and sewerage	57
7.10	Waste management	58
7.11	Renewable energy and energy efficiency	59
8	Institutional capacity and Interinstitutional cooperation, supported initiatives during the 2014-2020 period	61
9	IDENTIFIED NEEDS AND DEVELOPMENT POTENTIALS	62
9.1	Develop transport/urbanization axes in the CBC region	62
9.2	Environment	63
9.3	Demography	63
9.4	Density of population	63
9.5	Local economies	63
9.6	Poor/weak municipalities	63
9.7	Restructuring of industries	65
9.8	Global Competiveness Index	65
9.9	Small and medium size enterprises (SMEs)	65
9.10	Tourism – what is needed to utilise available resources	66
9.11	Unemployment	67
9.12	Healthcare	67
9.13	Education	67
9.14	Cultural heritage	68
9.15	Roads	68
9.16	Railways	68
9.17	Border crossings	68
9.18	Inland waterways	68
9.19	Water supply and sewerage	68
9.20	Waste management	69
9.21	Renewable energy and energy efficiency	69



9.22	Ecology	69
9.23	Protected areas	70
9.24	Climate change	70
9.25	Institutions – interaction, capacity building needs	71
10	Development potential	71
10.1	Tourism	71
10.2	Functional zones for economic development	71
10.3	Border crossings	72
10.4	Energy efficiency measures	73
10.5	Water management	73
10.6	Environmental protection and tourism	73
11	CONCLUSIONS	74
12	SOURCES OF INFORMATION	74

List of tables

Table 1: Demographic dynamics 2011-2019	7
Table 2: Density of occupation 2019	8
Table 3: Sectoral structure of economies, 2018	15
Table 4: Tourism in the CBC region, 2019	23
Table 5: Employment, 2019	24
Table 6: Unemployment rate, 2019	25
Table 7: Extreme unemployment in municipalities, 2019	26
Table 8: Hospitals, hospital beds and people per bed in the CBC region (number)	28
Table 9: Cultural infrastructure in CBC area (total)	38
Table 10: Length (km) and structure of National Road Network in Bulgaria, 2019	49
Table 11: Length of roads in the Republic of Serbia, 2018 (km)	50
Table 12: Length (km) and structure of National Road Network in the Republic of Serbia	50
Table 13: Length of railways lines by districts, 2018	51
Table 14: Renewable Energy: Power Plants - number and capacity for Bulgaria, 2020	59

List of maps

Map 1: Map of Cross-border region	4
Map 2: Geographic map of Cross-border region	5
Map 3: Cross border region – spatial structure and links	6
Map 4: Population density, 2019	9
Map 5: Municipalities in the CBC region with the weakest local economies	13
Map 6: Cultural corridors and heritage in the Crossborder region	37



<i>Map 7: Share of the municipal territory belonging to National ecological Network (NEN) in Bulgarian – national context</i>	43
<i>Map 8: NATURA 2000 sites in Bulgaria and EMERALD Network sites in Serbia – cross-border region</i>	45
<i>Map 9: Railway lines in the cross-border region</i>	52
<i>Map 10: Eurovelo corridors</i>	53
<i>Map 11: Border crossing checkpoints, airports, ports</i>	56
<i>Map 12: Poor/weak municipalities in CBC region</i>	64
<i>Map 13: Functional zones for economic development in Bulgarian CBC area</i>	72

List of figures

<i>Figure 1: Age structure of population, 2019</i>	8
<i>Figure 2: Global competitiveness Index, 2019</i>	18
<i>Figure 3: People per 1 doctor in the CBC Region</i>	27
<i>Figure 4: Pisa 2018 worldwide ranking</i>	29
<i>Figure 5: University students 2018/2019</i>	31
<i>Figure 6: Ten-T corridors in the area</i>	48
<i>Figure 7: Greenhouse gas emissions (in CO2 equivalent)</i>	60



INTRODUCTION

One of the activities of the MRDPW's assignment to the contractor is to prepare an "Analysis of the development needs and potential of the territory covered by the Integrated Territorial Strategy (ITS)" for the needs of the bilateral cross-border cooperation programme INTERREG - IPA CB 2021-2027 between the Republic of Bulgaria and the Republic of Serbia. The analysis shall be reviewed by the Task Force Group who is expected to propose concrete recommendations for revisions, if needed, so that to improve and streamline the structure and content of the product.

The main objective is to investigate and reveal the *needs and development potential* of the subject territory, covered by the ITS and thus creating the basis for identifying the key areas of intervention, addressed in the strategy.

The specific objectives of the Analysis are related to the study of the possibilities for improvement of the *territorial interactions, the economic and social cohesion* in the programme area through cross-border oriented interventions.

The territorial scope of the Analysis is that of the trans-border programme area, which remains unchanged for the period 2021-2027. At a later stage, the geographical area of the strategy will be identified in close cooperation with the Task Force Group, following the principles of integrity, territorial concentration and feasibility within available resources. The region is characterized by opportunities for a relatively high degree of interaction and partial interdependence between the different sectors of socio-economic life on both sides of the border.

The *temporal scope* of the analysis covers mainly the period 2011-2018, depending on the available information on certain indicators. Its *thematic scope* is oriented to the main goal (reveal the needs and development potential) and includes typical regional development spheres: demography, economy, tourism, labour market, social services, infrastructure, environment, cultural heritage.

The outstanding character of the analysis is "*selective and problem oriented*" - it focuses on the joint challenges, needs, potentials and common priorities of the subject area (rather than presenting general characteristics and development objectives). The analysis ends up with a synthesized section that highlights the strengths, weaknesses, opportunities and threats of the programme area, thus supporting the elaboration of an appropriate ITS.

The main sources of necessary information and data are provided by the Contracting Authority and closely related to the purpose of the contract Draft Programme's Intervention Logic, Territorial analysis of the Bulgaria-Serbia cross-border area and other explored documents. One of the substantial sources is the National Concept for Spatial Development, providing background orientation:

Key topics in the cross-border cooperation with the Republic of Serbia are *tourism, economy, biodiversity and ecology*.

The tourism is mostly vacationing and short-travel on weekends and holidays. The opportunities for health and cultural tourism, considering the existing cultural assets and hot springs on both sides of the border, remain underutilised. The economic relations need further development, considering the job creation in Bulgaria, especially in the outsourcing industry.



The existing protected areas for preservation of the biological diversity on both sides of the border are preconditions for the creation of a cross-border ecological corridor and the implementation of joint projects.

Climate change makes the ecology an area where cross-border cooperation, with joint initiatives to prevent and combat floods and forest fires, including raising awareness and trainings, becomes essential.

The centres for development are Sofia, Vratsa, Montana and Vidin on the Bulgarian side and Niš and Pirot on the Serbian side, which are positioned as a natural waypoint on the axes of development towards the capital city of Belgrade. Further, urban centers Zaječar, Leskovac and Vranje form the “north-south” urbanization axis in the CBS area.

On the Bulgarian side, the connections are provided by 5 BCPs with two crossing modalities: road connection and/or railway station.

While legal and administrative obstacles to the cross-border cooperation still exist, the differences are expected to be gradually resolved, considering the Republic of Serbia’s aspiration to join the EU.

Problems with the administrative capacity of the smaller municipal centres create difficulties for the joint operation of the public authorities on both sides of the border. The sociocultural differences and deficit of trust are minor and do not create any obstacles to tourism and the economic relations.

The physical access needs to be improved by increasing the throughput of the BCPs, ensuring the reliability of their control systems and removing the “bottlenecks” in the transport infrastructure. The improvement of the transport connectivity and accessibility between the two states, along various routes and transport modalities, as well as the completion and upgrade of the engineering infrastructure on the border territories are key factors for intensive development.

National Concept for Spatial Development, 2019 Update. <https://www.mrrb.bg/bg/aktualizaciya-na-nacionalnata-koncepciya-za-prostranstveno-razvitiye-za-perioda-2013-2025-g/>

The information is supplemented by data from the National Statistical Institute, Eurostat, state institutions and administrations, official sources, cited in the relevant sections. A significant set of international, European and national planning documents, relevant to the task, have been investigated and reflected too.

The main limitation factor in the applied research is the incomplete and fragmented information, the different formats of data and the related financial, time and intellectual resources, necessary for data receiving and processing. In addition, the access to up-to-date information in some areas proved to be rather limited.

The *methodological framework* for the elaboration of the ITS (including its analytical part) is determined by the system of approaches, principles and methods, applied in the process of developing, consulting and implementing the strategy.

The *integrated approach* unites the participants in the process of strategic planning and programming and in the elaboration and implementation of development policies. It combines an analysis of sectoral policies, their spatial dimensions and links. The aim is to identify the potential for positive synergies between sectoral policies and ways to reduce conflicts between them. The integrated approach comes to replace the current “mirror approach for cooperation”. Finally, the new approach would mean supporting only projects with real cross-border effects (i.e., exchange of experience, goods and services).

The *cross-border approach* brings together the efforts of partner countries to strengthen the socio-economic development of border areas. This approach increases the ability to solve common problems.



The *ecosystem-based approach* is at the “heart” of contemporary planning and programming. The analysis shall take into account the needs of managing human activities in a way, not risking the ability of ecosystems to cope with changes and to ensure the sustainable use of natural products and services by present and future generations.

The *place-based approach* requires to take into account well-structured knowledge of local areas, resources and potential, in order to become the basis for planning for the future, according to the specific characteristics of local areas and population needs. Namely this approach is hampered by recent pandemic related restrictions.

There is still no sufficient statistical information on the impact of the Covid-19 pandemic on the socio-economic development of the region, and the period under review is related to the very high dynamics of the studied parameters. On the other hand, the developed strategy will enter into force in early 2022. Until then, national governments plan to control the pandemic, thanks to the intensive vaccination process of the population, and to intensively implement their plans to restore socio-economic life. All this leads to the assumption that the analysis should focus on the new possibilities that pandemic reveals and on the development needs and potentials of the programme area, rather than on the negative effects of the crisis. Namely the revealed needs and potentials will be the basis for planning cross-border cooperation that would contribute to the recovery through proper, feasible and efficient mutual projects with tangible and sustainable results.

1 CROSS-BORDER AREA – GENERAL DESCRIPTION

1.1 Programme area and regional structure

The eligible area of the cross-border cooperation programme INTERREG - IPA CB 2021-2027 between the Republic of Bulgaria and the Republic of Serbia Programme covers NUTS 3 regions or equivalents, situated on the border between both partnering countries, including: Bulgarian districts of Vidin, Montana, Vratsa, Sofiyska oblast, Pernik and Kyustendil, and Serbian districts of Bor, Zajecar, Nisava, Toplica, Pirot, Jablanica and Peinja.

The districts of Vidin, Montana and Vratsa are part of the North West NUTS 2 region of Bulgaria (NWR), and the next three – Sofiyska oblast, Pernik and Kyustendil are part of the South West NUTS 2 region (SWR). The first region is one of the less developed in the country and the latter - the most developed one. The administrative structure of the Republic of Bulgaria follows the European Nomenclature of Territorial Units for Statistics and took the current form in 2008 with 2 NUTS 1 regions, 6 NUTS 2 regions, 28 NUTS 3 districts, 265 LAU 1 municipalities, and 5,258 LAU 2 municipalities.

The administrative structure of the Republic of Serbia follows the Equal Territorial Development Act, amended in 2010 with 2 units, corresponding to the NUTS 1, 5 statistical regions (NUTS 2) and 29 districts, corresponding to the NUTS 3 units in the European countries.

Similar to Bulgaria in the Republic of Serbia the statistical regions are not administrative units and there are no traditions in governance on NUTS 2 level, these regions have no administrative power and are not self-governed entities.

Map 1: Map of Cross-border region

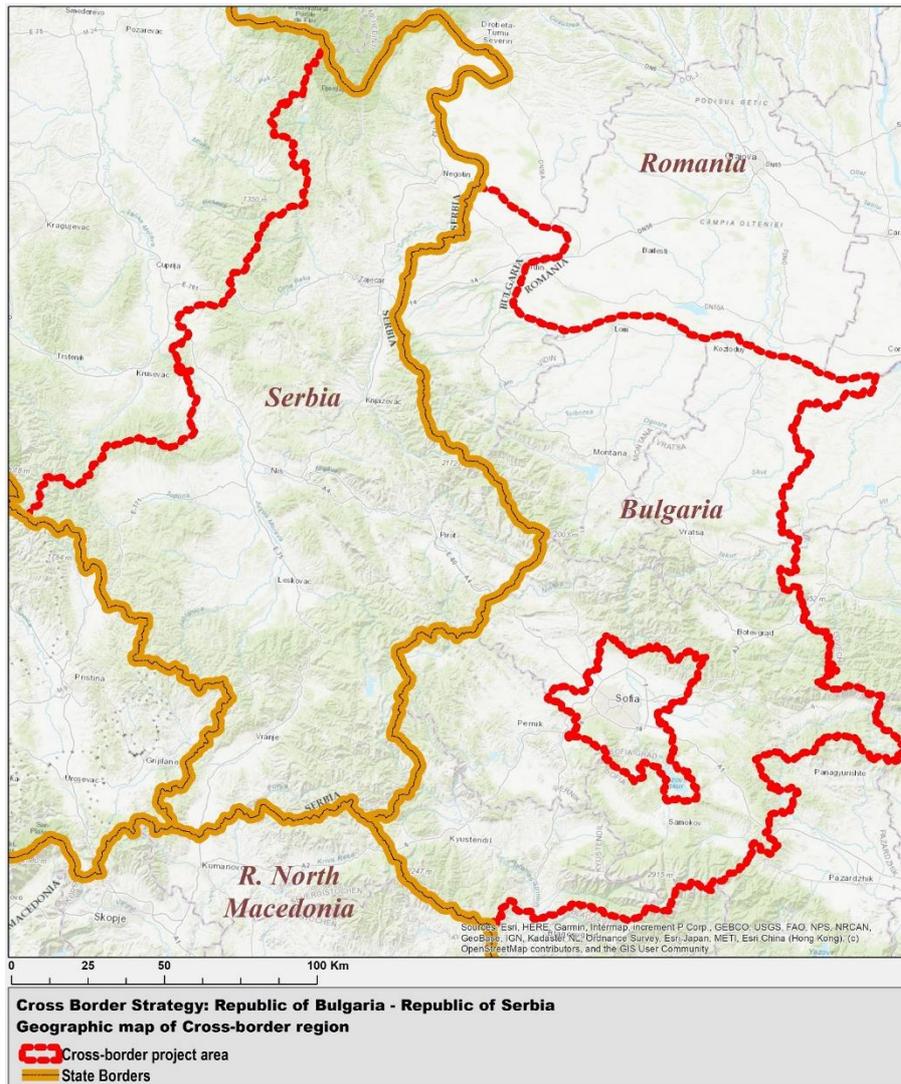


1.2 Geographical characteristics

The geographic structure of the cross-border cooperation (CBC) area includes mountains, hilly areas, plains and valleys in the big range of 30-2730 m. altitude. Over half of the territory is mountainous. The whole range of the Western Balkan Mountains lays there, together with the border mountains of Osogovo and Vlahina, as well as parts of Rila, Verila, Konyavska and Zemenska (on the Bulgarian side) and Deli Jovan, Rtanj, and Ozren - on Serbian side. Numerous plains and valleys, the most important ones being the Danube plain as well as the Kyustendil, Dupnitsa and South Morava River valleys, form a strong natural potential for the development of agriculture and forestry. There are many attractive nature complexes (rocks, water and vegetation) that are or can be developed into tourist sites/resources.

The Danube River which borders the CBC region to the North is a natural resource with considerable development potential. Other significant „carriers“ of surface waters in the region are the rivers Nišava (springs in Serbia, then flows in Bulgaria and gets back to Serbia near the border check point Kalotina), Timok, Erma, Struma, Iskar, Ogosta and Lom. The Ogosta and Vlasina artificial lakes as well as numerous smaller ponds complement the rich water resources of the region. Groundwater (both, springs and thermal waters) resources are available across the whole CBC area. The most significant thermal springs with potential for development of spa tourism are the ones in the towns of Kyustendil, Sapareva Banja, Vurshets, and Rudarzi (on Bulgarian side) as well as Niška Banja, Vranjska Banja, Zvonačka Banja, Gamzigradska banja, Sokobanja, Brestovačka banja, Prolom banja, Lukovska banja, Kuršumlijska banja, Prolom Banja, Sijarinska banja and Bujanovačka banja (on the Serbian side).

Map 2: Geographic map of Cross-border region

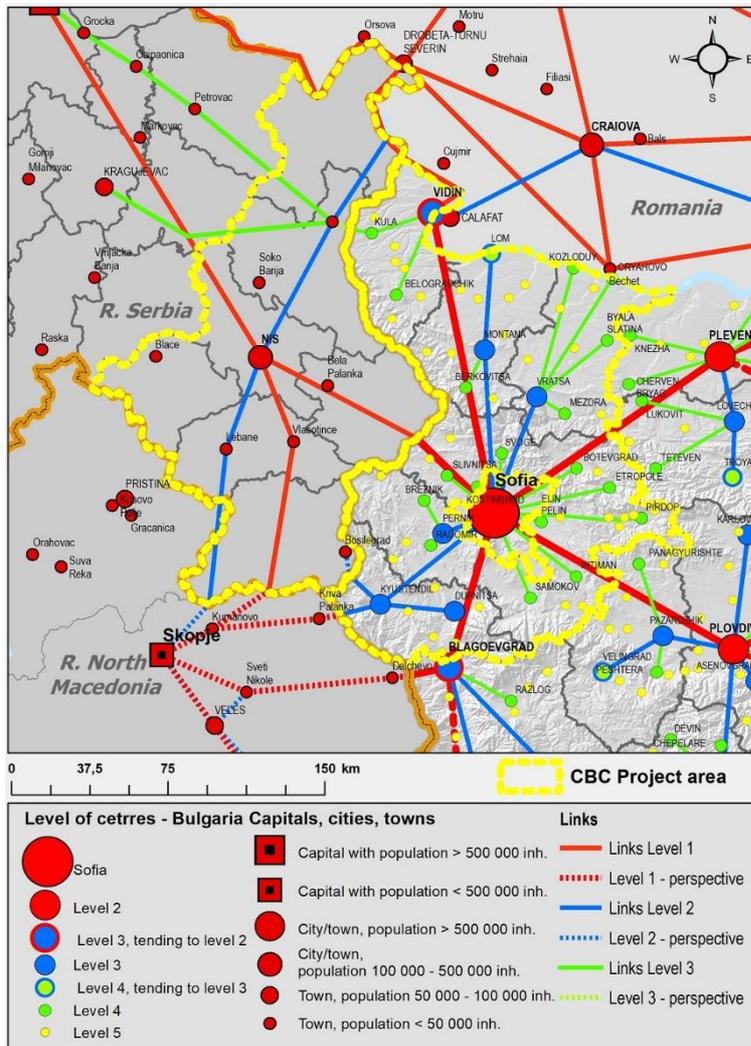


Diverse relief presupposes diverse climate. It varies from moderate-continental, transitional-continental to mountainous. Soils, accordingly to the relief, vary too - from forest soil in the mountain and hilly areas to alluvial soils in the river valleys and rich black earth in the plane areas. This covers the needs of the whole variety of agricultural crops, including fruits and vegetables. And there are well established sub-regions specialized in certain agricultural productions, especially fruits – cherries, apples and plums. The mountains are well forested both with deciduous and evergreen trees and rich vegetation that illustrates the unique biodiversity of the region. This complex provide the basis for wood-processing industries, stock-breeding, herb and mushroom collection. The environment as a whole is „friendly tuned“ to alternative forms of tourism too.

Different types of mineral resources are available but only few of them have economic importance - the deposits of copper and gold in the southern slopes of the Central Balkan Mountains (near Pirdop and Chelopech, BG) and similar deposits near Bor and Majdanpek, RS. The deposits of brown coal in the region of Pernik (BG) are exhausted since several decades, but they have been the main urbanization factor for the city in the past.

The environment in the area is assessed as having a high degree of sensitivity to climate change. Droughts, floods and forest fires are potentially significant risks in the area.

Map 3: Cross border region – spatial structure and links



Source: National Concept for Spatial Development 2013 - 2025. Update 2019

2 DEMOGRAPHIC DEVELOPMENT

2.1 General overview

Characteristic of this peripheral and mountainous region on both sides of the border between the Republic of Bulgaria and the Republic of Serbia is the declining and aging population with limited potential for economic development. Low population density, difficult accessibility in addition to deteriorating demographics are among the CBC region's important problems.

As of 2019, the total population of the CBC region has been 1 971 898 people. The demographic mass is almost evenly distributed among the BG and RS parts of the CBC region. The natural growth of population follows a negative trend for decades. For the period 2011 - 2019, the region has lost 151 718 inhabitants that make 7,7% decrease (1% on yearly basis).



The population of the Bulgarian part of the programme area is 832 082 people, accounting for almost 12% of the country's total population and 42,2% of the total CBC region. In terms of dynamics, the decrease has been 11,7% for the reference period 2011-2019 – 2,3 times higher than the national average (5,1%) and over 3 times higher than that of the Serbian part. By districts, the most significant decrease is recorded in Vidin (-16,3%), followed by Vratsa (13,6%), Kyustendil (13,4%) and Montana (13,0%). Conditionally, the most favourable is the trend in Sofia district – 7,7% decrease. Vidin District is the smallest in population with 84 865 people living there.

The Serbian programme area has had a total population of 1 139 816 people as of 2019. This is a share of 16,15% of the country's total population and 57,8% of the total CBC region. In Serbia, the region's population decreased only by 3,5% for the reference period 2011-2019, compared to 11,7% decrease of the BG part. Pirot District (83 699 people) is the smallest in population on RS side and second one (after Vidin – 82 835) in the CBC region.

The continuous negative dynamics in both CBC region parts is due to negative natural and mechanical growth rate.

Table 1: Demographic dynamics 2011-2019

DISTRICTS	2011	2019	DYNAMICS nr.	DYNAMICS %
PROGRAMME AREA BULGARIA	942720	832082	-110638	-11,7%
Vidin	99481	82835	-16646	-16,7%
Montana	145984	127001	-18983	-13,0%
Vratsa	184662	159470	-25192	-13,6%
Sofia	245616	226671	-18945	-7,7%
Pernic	131987	119190	-12797	-9,7%
Kiustendil	134990	116915	-18075	-13,4%
PROGRAMME AREA SERBIA	1180896	1139816	-41080	-3,5%
Bor	124992	111152	-13840	-11,1%
Zaječar	119967	106100	-13867	-11,6%
Jablanica	216304	198740	-17564	-8,1%
Nišava	376319	360494	-15825	-4,2%
Pirot	92479	83699	-8780	-9,5%
Pčinja	159081	196431	37350	23,5%
Toplica	91754	83200	-8554	-9,3%

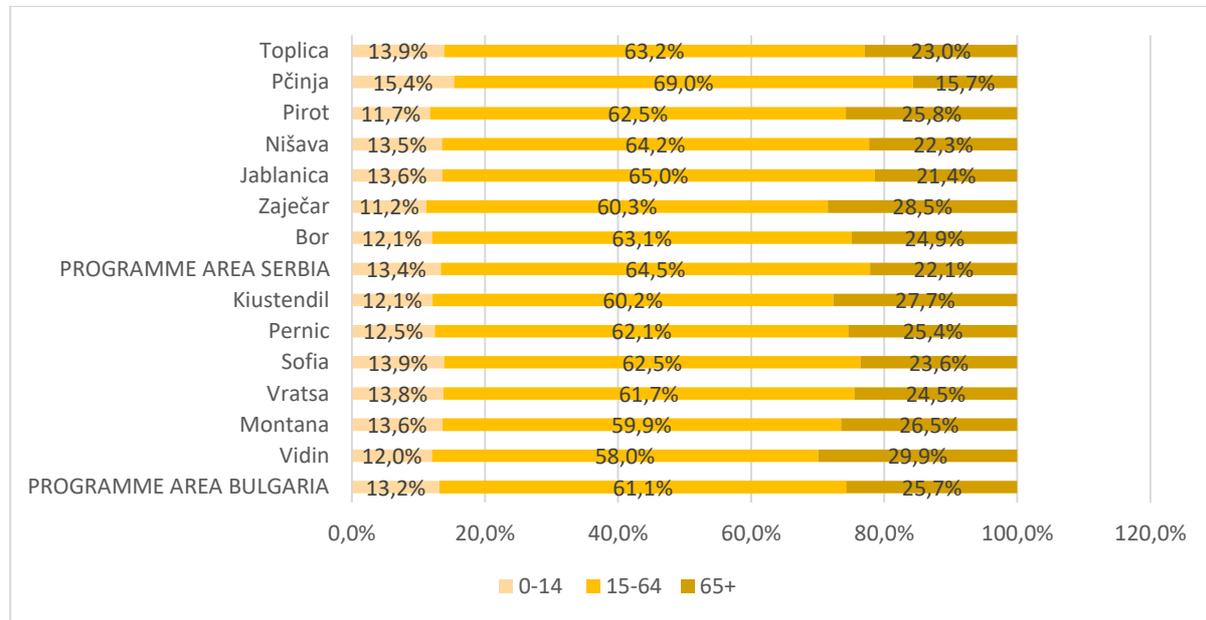
Source: National statistics - BG and RS

Following national trends, the CBC region population is continuously ageing over the last few decades. As a result, the human potential for economic development, especially in rural peripheries on both sides of the border is constantly decreasing since the active population accounts for less than 65%. On average, the Serbian share of working-age population (64,5% at age 15-64) is higher than that in BG (61,1%). On district level, the lowest share in RS programme area is in Zaječar (60,3%) and in the relevant BG part – in Vidin (60,3%). Direct expression of ageing is the high and increasing share of persons aged 65+. The average for BG part is 25,7% and for RS – 22,1%. The 0-14 age range is unfavourable too. It is lower than national averages and is respectively 13,4% for the Serbian part and 13,2% – for the Bulgarian.

Seen from the **Figure 1** below, it can be concluded, that age structure in both sides is comparable

and varies moderately, being more-favorable in the Serbian part. Inequalities are much higher on municipal and settlement levels and this fact should be considered when planning supporting measures in both – social and economic development.

Figure 1: Age structure of population, 2019



Source: National statistics BG and RS, 2019

2.2 Population density

The average population density of the BG part of CBC region (37 inhabitants per km²) is considerably lower than the national one (63 inhabitants per km²) and varies significantly at municipal level. In 12 municipalities (located in the districts Vidin – 4, Montana – 1, Pernik – 2, Kyustendil – 3) the population density is even 10 or less inhabitants per km². These are spaces in high risk of serious depopulation of the settlements located there.

Table 2: Density of occupation 2019

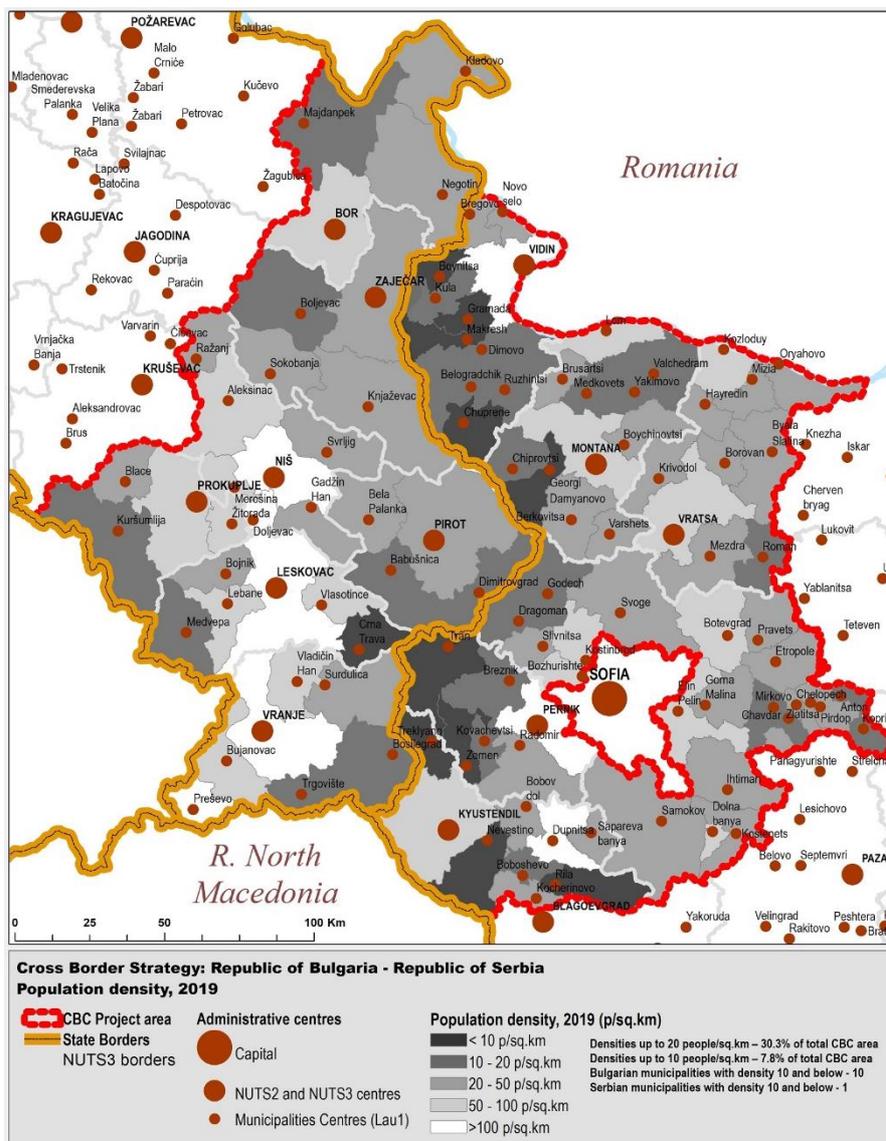
	AREA sq.km	POPULATION	DENSITY p/km ²
PROGRAMME AREA BULGARIA	22797	832082	36
Vidin	3033	82835	27
Montana	3636	127001	35
Vratsa	3620	159470	44
Sofia	7062	226671	32
Pernic	2394	119190	50
Kiustendil	3052	116915	38
PROGRAMME AREA SERBIA	21141	1139816	54
Bor	3507	111152	32
Zaječar	3624	106100	29
Jablanica	2770	198740	72
Nišava	2728	360494	132

	AREA sq.km	POPULATION	DENSITY p/km ²
Pirot	2761	83699	30
Pčinja	3520	196431	56
Toplica	2231	83200	37

Source: National statistics BG and RS

The analogical data for the RS part of the CBC programme region has better values – average population density 54 p/km² compared to 36 p/km² for the BG part. Though lower than the national average (81 p/km²), the population density does not vary so dramatically as in the BG part. There is only one municipality with extremely low density (below 10 p/km²) – Crna Trava, Jablanica district.

Map 4: Population density, 2019



Source: National statistics BG and RS, 2019

As a final result, a list of 8 groups with a total of 55 municipalities in 18 districts were identified. In the BG part of CBC area, there are 25 municipalities of this type: Vidin – 10, Montana – 9,



Vratsa - 3, Pernik – 2, Kyustendil 1. As seen from the map below, almost all BG municipalities, bordering the CBC area, belong to the group of weakest local economies.

The lack of analogical information for the RS part does not allow data based assessment, but an expert's assumption would be that the Serbian municipalities adjacent to the CBC border line belong to the same group of weakest local economies.

The conclusion on this topic would be that low densities of population hinder equal accessibility of scattered population to reasonable quality social services – health care, education, culture, sports and even shops. Measures should be undertaken to improve mobile and distance services, communications and condition of road network.

3 ECONOMIC DEVELOPMENT

3.1 Main economic indicators

The analysis of economic development, based on comparisons of traditional indicators - GDP by statistical NUTS 3 territorial units, GDP per capita and Gross value added (GVA), reflects the typical characteristics of the border periphery, including difficult accessibility and mobility, low population density, depopulation and aging, limited labor market, weaker resilience to crises.

The *Bulgarian* economy has been growing steadily for the last 7 years (until 2019 inclusive). Real gross domestic product (GDP adjusted to inflation) grew by about 3,2% in 2018 and 3,4% in 2019. The steady growth of GDP in recent years is mainly due to improvements in overall productivity and growing individual consumption. The growing economic activity of the population, higher employment and rising wage levels also have a positive effect. Another positive factor is the dynamically developing global economy, which has led to growing demand for Bulgarian goods and services, competitive on world markets.

The ongoing pandemic is forecast to drag the economy into a recession in 2020. Poverty is projected to increase, given the job losses and rising vulnerabilities associated with the crisis and the possible negative impact of rising minimum wages on employment among the unskilled. The poor are more vulnerable to health shocks because they often have less access to health care and insufficient savings to cope with the crisis.

Additionally, they are more likely to suffer from income losses as a result of quarantines and/or disruptions in economic activity. According to the World Bank¹, Bulgaria will need to adopt decisive recovery measures to increase productivity by at least 4% per year in order to catch up with average EU income levels and boost shared prosperity.

The economy of *Serbia* is a service-based upper middle-income economy with the tertiary sector accounting for two-thirds of total gross domestic product (GDP). The strongest sectors of Serbia's economy² are energy, automotive industry, machinery, mining, and agriculture. Primary industrial

¹ <https://www.worldbank.org/en/country/bulgaria/overview>

² <https://www.worldbank.org/en/country/serbia/overview>



exports are automobiles, base metals, furniture, food processing, machinery, chemicals, sugar, tires, clothes, pharmaceuticals. Trade plays a major role in Serbian economic output.

The average growth of Serbia's GDP in the last five years has been 4% per year. GDP structure by sector is: services 67,9%, industry 26,1%, agriculture 6,0%.

The pandemic, related restriction measures, and a stimulus package of nearly 13% of GDP are a heavy burden on the Serbian economy, with a projected decrease in real GDP of 3% in 2020 and recovery starting in 2021.

Serbia used most of the available fiscal space early on in the pandemic, resulting in an economic contraction of 6,4% in the second quarter of 2020 that was less pronounced than in neighboring countries but still led to a small increase in unemployment. As the economy experiences a recession and public debt sharply increases, the future fiscal capacity to stimulate a recovery is limited, requiring further reforms to bring the economy back to steady growth.

The government is expected to continue to implement programs that address structural weaknesses, increase public sector efficiency, and eliminate bottlenecks to private sector growth, along with maintaining macroeconomic stability.

An important aspect for both, RS and BG will be the introduction of a „green growth“ program to their post-COVID-19 economic recovery efforts while responding to challenges that include a shrinking population, labour shortages, and negative impact of climate change.

3.2 Gross Domestic Product (GDP)

Despite its relatively good overall economic performance, Bulgaria has been slow to catch up with the rest of the EU countries. Real GDP (adjusted to inflation) grew by an estimated 3,2% in 2018 and is expected to increase by 3,6% in 2020, driven by domestic demand. Potential GDP growth has strengthened over recent years. This has been driven mainly by improvements in total factor productivity, while the contributions of capital and labour have been modest. Regional and especially intro-regional disparities are growing and hampering the competitiveness of the country. Output and incomes across Bulgaria are very uneven, as shown by a coefficient of variation of almost 50% in the 2018 GDP per capita. Although it accounts for just 18,8% of the population, the Sofia-city district generates nearly half of the country's GDP. The GDP situation is no different in the constituent districts of NUTS 2 regions. In most cases, disparities among constituent districts are expressed in several times difference between the highest and lowest value.

The GDP in both countries is low as compared to the rest of the European countries. As of 2018³, in Serbia it has been 42 855 mln EUR, while in Bulgaria – 58 771 mln. EUR. Serbian statistics does not record the GDP per districts but at the level of the region (NUTS 2 equivalent). Pursuant to the estimation principle of workplace, in 2018 the regions had the following shares in the Serbian GDP: Belgrade region holds the leading position (41,3%), Vojvodina region (25,9%) follows and then come the region of Šumadija and West Serbia (18,6%) and the region of South and East Serbia (14,1%).

³ <https://ec.europa.eu/eurostat/web/national-accounts/data/main-tables>



Sectoral analysis of GDP at the level of Serbian CBC area shows that Nišava region is the leader in all analyzed sectors of the economy. Along with the Nišava area, a higher GDP is recorded in the Pčinja area. The third area that stands out in terms of GDP is the Jablanica area. Unlike Pčinja area, it has higher GDP in the area of financial transactions. In addition, the data show that GDP in the Bor region is higher than in the rest, mainly due to the well developed mining and processing industry.

Though informative for the general economic background of the CBC region, the indicator does not contribute to revealing of unused potentials for future support and development of specific territorial units and small local economies.

3.3 Gross domestic product (GDP) per capita

The GDP per capita in Bulgaria during the 2013 - 2017 period is increasing slightly faster than the EU average. With the exception of the Sofia city, the overall level of economic development of the border area is considerably lower compared to BG and RS national levels, which are much lower than the EU average. Considering the volume indices of GDP per capita for 2019⁴, BG has 53 (EU27=100) and RS – 41 (EU27=100). In terms of value, the BG average GDP per capita is EUR 7 984, respectively EUR 6 138 for RS.

In the border region, the average GDP per capita is EUR 3 543, compared to average EUR 5 158 for BG and EUR 3 071 for RS. At district level, the BG leaders are Sofia (EUR 7 939) and Vratsa (EUR 5 974), respectively Bor (4 274) and Pirot (4 125). The poorest at both sides are Pernik (BG) and Pcinja (RS).

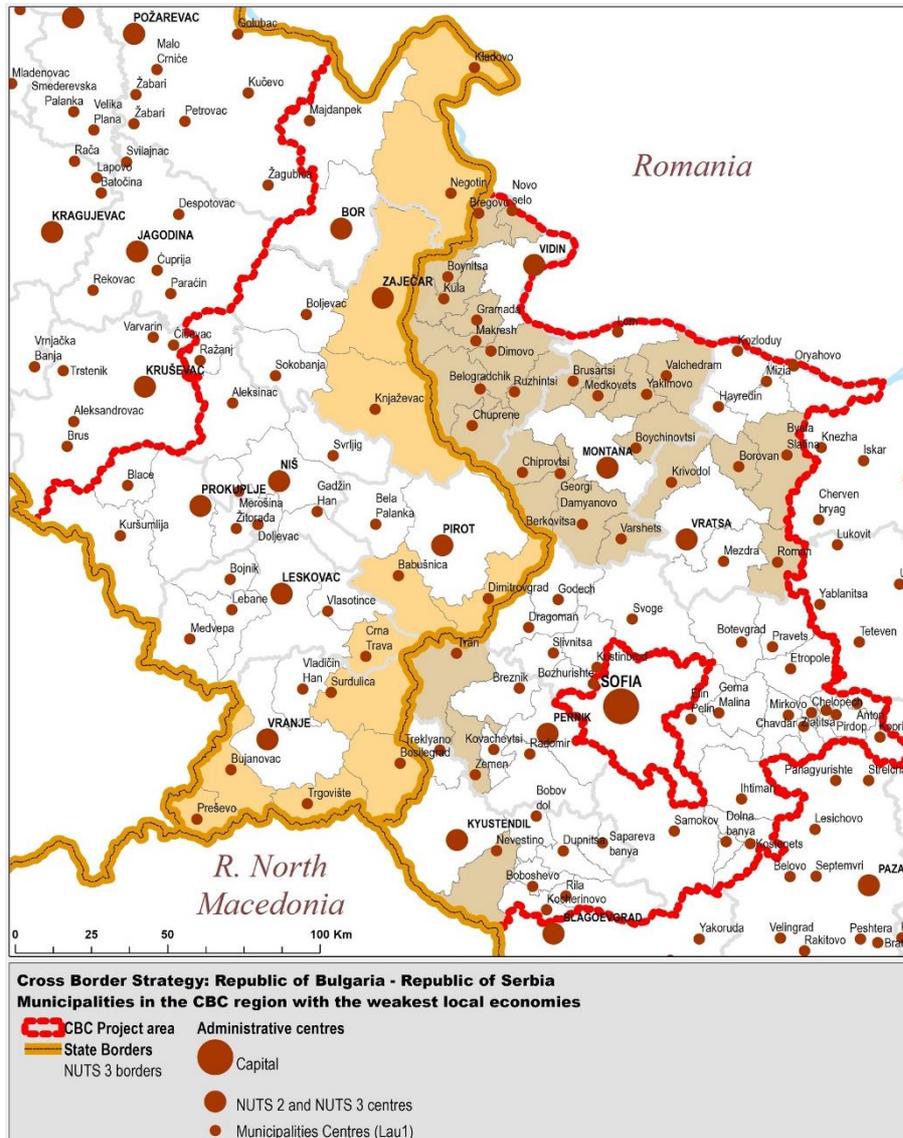
The significant *income disparity* is evident at this level, but it is dramatic at lower, municipal level (though measured by a different indicator). However its impact may be controlled through active targeted economic and social cohesion activities, including direct support to SMEs.

The 2019 update of the BG National Concept for Spatial Development has assessed the weakest local economies at municipal level with the aim to identify functional areas for targeted social measures, called „social areas“. They were identified by a four-step process: 1) the municipalities were assigned indexes on three indicators – „population growth in a certain period“, „output per capita“ and „rate of unemployment“; 2) rank municipalities by an aggregate index based on the above three indicators - the first 90 municipalities in the worst condition were identified; 3) municipalities in the vicinities of economic centres were removed from the list of the bottom 90 because such municipalities are likely to benefit from their proximities to the centres. The set was thus reduced to 77 municipalities; 4) the targets of support by mainly social measures were identified - groups of 3 and more neighbouring/close municipalities without proximities to a NUTS 2 centre, belonging to the „border“ and/or „mountain“ groups. In the BG part of CBC area, there are 25 municipalities of this type: Vidin – 10, Montana – 9, Vratsa - 3, Pernik – 2, Kyustendil 1. As seen from the map below, almost all BG municipalities, bordering the CBC area, belong to the group of weakest local economies.

⁴ https://ec.europa.eu/eurostat/statistics-explained/index.php/GDP_per_capita_consumption_per_capita_and_price_level_indices

The lack of analogical information for the RS part does not allow data based assessment, but an expert's assumption would be that the Serbian municipalities adjacent to the CBC border line belong to the same group of weakest local economies.

Map 5: Municipalities in the CBC region with the weakest local economies



Source: National statistics BG and RS, 2019

3.4 Sectoral structure of Bulgarian and Republic of Serbia economies

Structural changes in a certain economy are usually very slow. The prevailing sector of Bulgarian economy for decades is that of services (tertiary sector – 66,9%), followed by processing industry (the secondary sector – 28,4%) and the primary sector (4,7% - extractive industries, agriculture, forestry and fishery). After slight fluctuations before 2015, an accelerated GVA in BG is observed.

The strongest sectors of Serbia's economy are energy, automotive industry, machinery, mining, and agriculture. Primary industrial exports are automobiles, base metals, furniture, food



processing, machinery, chemicals, sugar, tires, clothes, pharmaceuticals. Trade plays a major role in Serbian economic output. After robust growth of 4,2% in 2019, the COVID-19 pandemic caused a recession of -1% in 2020. This is a significantly better result than what was previously projected (a drop of 3%). Services sectors were hit the most by the pandemic-related events (down 1,5% year-on-year), while value added in industry remained flat in real terms and the agriculture sector grew by 4,9%. On the expenditure side, both investment and consumption had a negative contribution to growth in 2020 (-1,1% and -0,7% respectively), while net exports had a positive contribution (0,8%)⁵.

The structure of the economy of the region of Southern and Eastern Serbia, observed by the most important economic indicators, parameters and indicators that are monitored, the dominant participation are the metal and electrical industry in relation to other industries. This is an advantage, but also an obligation of this industry, to realize positive changes to contribute to economic and overall life, which would affect faster development and a higher standard of living. Over 95% of companies are privately owned, with a wide range of different activities, which gives special potentials and perspectives of branches that have a tradition and professional staff in this part of Serbia. The greatest economic potential of this sector is located in the Nisava district, both due to the presence of large systems and due to the large number of registered small and medium enterprises that are doing very well in the current conditions. On this occasion, we should mention numerous successful companies from other municipalities, such as Pirot, Babusnica, Kursumlija, Prokuplje, etc. which are world's high-end in their niche. Special emphasis should be placed on the IT and advance technology sector. Within the IT sector in the Nisava district, there are about 200 companies, with a total number of employees of about 1000 people. The largest share in the business income of the IT sector is realized by programming and consulting IT companies. Half of the employees work in programming and consulting IT companies, which generate the highest total income, but also an enviable income per employee that is more than 3 million dinars in 2019 (3,292,000 dinars). The data indicate a growing trend of all business performance indicators regarding IT. The continuous growth of the number of companies and their employees is a very encouraging fact. Operating revenues recorded significant increases at the annual level of about 16%, while revenues generated by exports recorded the largest increase. Also, it is important to note that the share of sales revenues in operating revenues in the period 2015-2020 is increased by about 10%, which means that the share of results achieved on the basis of key activities increases, and thus the success of companies in developing key competencies as a basis increase in business results in the future. Despite the improved technological structure of industrial production and exports, low-tech products still predominate. Total exports of high-tech products in relation to total exports in 2018 amounted to 1,9%. According to this indicator, the Republic of Serbia lags significantly behind the EU average (17,9%) as well as the EU members in the region (Eurostat Database). The economy, oriented towards advanced technologies, and especially highly innovative start-up companies that offer new solutions with global application, are the only option that offers growth and employment.

⁵ <https://www.worldbank.org/en/country/serbia/overview>



The economic structure of the cross-border region is as follows – a relatively large service sector, followed by industry, construction and agriculture:

Table 3: Sectoral structure of economies, 2018

SECTORS AND SUBSECTORS	BULGARIA	SERBIA
Mining, manufacturing, energy, gas and water supply	28,5%	24,9%
Agriculture, hunting and forestry	3,5%	5,2%
Construction	6,6%	4,5%
Finance, banking, insurance, real estate, business consultancy	7,9%	4,0%
Trade and repair, tourism, transport and communication	41,1%	24,4%
Government, education, healthcare and others	12,5%	36,9%

Source: Territorial Analysis of the Bulgaria - Serbia Cross Border Area, 2020, MRDPW

In the Republic of Bulgaria and less in the Republic of Serbia, industrial production had a substantial drop during transition period resulting in restructuring, privatization and closing of whole industries. Probably they will be never recovered. In parallel with the visible reduction of the unemployment rate, the region of South Eastern Serbia has strategically decided to look for more sustainable models, which will be the basis for reengineering the economy not only of the region, but also strengthening the global competitiveness of the entire Republic of Serbia. The basis lies in creating a favourable business environment to enhance the exchange of knowledge between universities and businesses, which support start-ups and innovative ideas and thus catalyse the process of commercialization of research.

The development of the RS-BG section of a TEN-T corridor (the highway Sofia-Niš) favours the *service sector*, especially international trade, transport and related services, tourism. However, the underdeveloped transport links in the rest of the CBC area and the objective relief barriers make it a semi-isolated periphery.

The South side of Corridor X leads to the Republic of Northern Macedonia and continues to Thessaloniki and Athens. During 2021, the construction of the highway from Niš to Pristina is expected to start, the section through Serbia to Pločnik in the length of 38km. The project is estimated at EUR 263 million, of which, the EIB will provide EUR 134 million, EUR 73 million will be funded through the EU WBIF and the remaining EUR 61 million will be financed from the state budget. There is ongoing project of the modernization and electrification of the single-track railway from the state border with Bulgaria to Prosek (near Nis), in order to build a high-speed railway from the state border to Nis and a bypass around Nis. As part of the republic project financed by the EIB and the EU, a high-speed railway is being built on the route Belgrade - Nis - Presevo - state border with the Republic of Northern Macedonia and thus enable Nis to become a railway hub. Air traffic takes place through the airport "Constantine the Great", with a total emergency capacity of 20 aircraft. The existing infrastructure is of high quality, which is why the number of passengers is expected to increase significantly very quickly after the end of the crisis caused by the COVID 19 pandemic. It is the second largest and most important passenger airport in Serbia. "Konstantin Veliki" Airport changed its ownership structure in 2018, when it passed from the ownership of the City of Nis to the ownership of the Republic of Serbia. It hosts regular cargo flights, passenger airlines Wizzair and Ryanair, Swiss air, AirSerbia, as well as private and



charter flights and alternative landing companies such as Montenegro Airlines, AustrianAirline, Lufthansa, Adria, Alitalia, Aeroflot, etc.

Agriculture does not hold a substantial share in GDP for all border districts/regions (average for the border area 4,6%). In Vidin, Montana and Vratsa districts (part of NUTS 2 NWR), the structure of agriculture is represented mainly by crop and livestock production. With regard to crop production, it is noted that the area is the main producer of maize for grain, sunflower and wheat. Livestock production is less developed, as 11,7% of cattle, 11% of sheep, 18,7% of goats and 17,6% of bee families in the country are raised in the Northwestern NUTS 2 region. For 2017, the acquisition of Tangible fixed assets (TFA) in the sector was BGN 293 642. The development of the agrarian sector is similar to the national pattern - predominantly monoculture crop production, leaving the area before being processed (lack of links to a circular economy and lost chances for a greater added value).

In Sofia, Pernik and Kyustendil districts (part NUTS 2 SWR) the structure of agriculture is represented by herding and stockbreeding. In terms of crop production, on national scale, the SWR ranks first in potato growing, second in rye and oat growing areas. The region is also a leader in permanent grassland and natural meadows. The area is the first in terms of number of goats raised and third in number of sheep raised nationally. Expenses for the acquisition of tangible fixed assets in the sector for 2017 were BGN 199 220.

As for the Republic of Serbia, agriculture is one of the most crucial sectors of the country's economy, employing around 21% of the total labour force, and serving as one of the primary export fields. As of 2018, the sector has contributed a share of 5,2% to the national GDP. In terms of cultivation, the most popular form of agriculture is cereal crop production, including wheat, corn and sunflowers. Such cultivation uses around 60% of Serbia's agricultural land.

3.5 Foreign Direct Investments (FDI)

FDI are continuously rising too, especially in the real estate sector, in financial brokerage, in production and trade of electricity. Looking closer at the relevant labour market indicators, the picture shows similar positive trends. FDI played an important role in restructuring the economies of the Republic of Bulgaria and the Republic of Serbia, as well as for boosting economic growth. The volume of FDI at national level in Bulgaria with cumulation, albeit slowly, shows a clear upward trend in the periods between 2007 and 2010 and after 2014. Small fluctuations occurred in the years of the economic crisis. In 2018, FDI reached EUR 24,9 billion and exceeded the higher level of EUR 23,5 billion achieved in 2016.

Economic development policies in the Republic of Serbia mainly focus on the attraction of FDIs. According to the National Bank of Serbia (NBS), in the period from 2010 to 2016, the net FDI amounted to EUR 11,4 billion, with the maximum of EUR 3,5 billion in 2011. In 2019 FDI reached another pic (EUR 3,8 billion) before dropping down to EUR 3,1 billion in the first year of pandemic – 2020.

According to the 2020 World Investment Report by UNCTAD, the inflow of FDI into Serbia rose



to USD 4,3 billion in 2019, from USD 4,1 billion the previous year (+4.3%) as a result of the country's improved business climate and equity capital growth. In 2019 the total stock of FDI stood at USD 44 billion. Serbia is the second-largest recipient of FDI among economies in transition after the Russian Federation. The European Union is the origin of 70% of investments in Serbia, followed by Russia, Switzerland and Hong Kong. According to FDI Intelligence, over the past five years, 56% of all greenfield FDI projects to Serbia have been in manufacturing. Data by the National Bank shows that the FDI influx increased by 14% y-o-y in the first four months of 2019. Further, the city of Niš is ranked 6th among 489 locations in the category of “Small European cities of the future” for 2020/2021 in terms of development strategy and 5th in the category referring to the terms of profitability for investment.....⁶

In the border region, only the Sofia district has higher FDI growth because of its proximity to the capital of Bulgaria (Sofia-city) and the relatively good business opportunities. In districts close to the border, foreign direct investments are almost negligible. Most of the FDIs are in the industry and services sector. A very small part of them are designated for agriculture and the peripheral areas.

3.6 Global competitiveness of the national economies

Covering 141 economies, the Global Competitiveness Index 4.0 (GCI) measures national competitiveness - defined as the set of institutions, policies and factors that determine the level of productivity.

In the 2019 edition of GCI, Bulgaria is on 49-th place (advancing from 51st place in the 2018 edition) and Serbia – on 72-th (losing 7 positions compared to the previous edition).

The report illustrates that on average, world economies still struggle to find the optimal balance between technology integration and human capital as to ensure competitiveness, equality and sustainability, and are still rebounding after the productivity losses incurred after the economic crisis. Enhancing competitiveness remains key for improving living standards.

The figures from 2019 edition show that Bulgaria performs better in Macroeconomic stability, Labour market conditions, Financial system and the Innovation ecosystem indicators. At the same time, the figures for the following pillars show a need for improvement: Infrastructure, Health, Product market and Business dynamics. Serbia's performance is mixed, with significant progress in some dimensions while losing some ground in others. Among the most improved elements, Serbia advances on Innovation ecosystem, Infrastructure and Labour market pillars.

⁶https://www.ni.rs/en/city-of-nis-european-city-of-the-future-2020-2021/?utm_source=rss&utm_medium=rss&utm_campaign=city-of-nis-european-city-of-the-future-2020-2021

Figure 2: Global competitiveness Index, 2019

Bulgaria

49th /141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 51st/140

Performance Overview 2019

Key ◊ Previous edition ▲ Upper-middle-income group average □ Europe and North America average



Serbia

72nd /141

Global Competitiveness Index 4.0 2019 edition

Rank in 2018 edition: 65th/140

Performance Overview 2019

Key ◊ Previous edition ▲ Upper-middle-income group average □ Europe and North America average



Source: <https://www.weforum.org/reports/the-global-competitiveness-report-2020>

The cross-border area follows the same path as the national economies, so there are still numerous issues to be solved in the coming period. Despite the differences, both economies need to tackle certain dimensions, where they rank poorer than the overall score, such as healthcare, education/skills, product markets, financial systems as well as innovation ecosystem maturity. Among others, ICT adoption remains one of the variables on which both countries have relatively good positions.



3.7 Small and medium-sized enterprises (SMEs)

Small and medium-sized enterprises (SMEs) are the backbone of the national economy and generate more than 60% of the GDP of Bulgaria. The Bulgarian SME sector has a share of 98% in industry and 99% in services. The number of micro-companies with staff between 0 and 9 people strongly prevails - reaching 383 134 in 2018 (93,6% of the total number of enterprises). The group of enterprises with 10 to 49 employees has 24 982 enterprises (5,1%). Based on data of the NSI for 2018, the number of operational non-financial enterprises in the Bulgarian CBC region was 34 651 - out of which micro – 32 178, small and medium – 2 403, large enterprises - 46. Sofia and Vratsa have the highest number of micro- and SMEs. In 2018, the net sales revenues in Pernik district reached BGN 2 773 million, which is an increase of 11,4% compared to 2017. Sofia and Pernik have the highest number of large enterprises – respectively 10 and 12. Despite the fact that in Sofia the largest enterprises have a share of 0,2% they realise 78,3% of the whole production, as well as ensure 30,1% of the employment in the district.

As of 2017, the number of enterprises in the Republic of Serbia⁷ has been 257267 – 87012 micro, 12955 SMEs and 521 large enterprises. In comparison to Bulgaria, the share of small enterprises in Serbia is almost twice higher (12,33%). The medium sized enterprises have a share of less than 3%, but they realize almost 25% of the total turnover. It should be noted that though the share of large enterprises is below 1%, they ensure more than 40% of the turnover and employment in Serbia. On regional scale, the South and East Region has 465 976 businesses registered out of which 16,4% SMEs (57 072) and 12,5% large enterprises. Nišava and Jablanica have the highest number of micro, small and medium enterprises while the highest concentration of enterprises employing more than 1 000 persons is recorded in Pirot, Pčinja, Zaječar and Bor.

In conclusion, both economies rely on large structural („backbone“) enterprises though the „flesh and blood“ is in the sector of highly prevailing number of SMEs. Namely they could become the subject of direct support under the new CBC programme. The economy, oriented towards advanced technologies, and especially highly innovative start-up companies that offer new solutions with global application, are the only option that offers growth and employment.

3.8 Tourism sector

Bulgaria – Global, European and National context

Tourism was among the sectors worst affected by the 2020 COVID-19 pandemic. Considering the current almost complete lockdown of the sector, within the context of the emerging economic crisis and sharply declining revenues, it can be expected that the global tourism figures will not recover to their pre-crisis 2019 levels in the short-term (1-2 years) and even the medium-term (3-4 years). Similar forecast can be made for Bulgarian tourism as well. In recent years, most of the volume was provided by the European markets. Interpolating the expectations for a deep stagnation in these markets, the outlook for Bulgarian tourism is decidedly negative. The actual numbers of the expected decline remain unpredictable.

⁷ <http://publikacije.stat.gov.rs/G2019/pdf/G20196001.pdf>



The current 2021 season will most likely be marked by restarts and adaptations to the new sanitary restrictions for all traditional services.

Against the backdrop of the pre-crisis challenges (strong competition, insufficient protection by the state, adverse consequences of climate change, seasonality and cheap tourist products), the development of tourism is expected to face even more complicated obstacles. The new systemic factors (political, regulatory, economic, ecological, sociocultural and technology) will be much different (most of them, for the worse) and the quick adaptation of the tourist industry to the dynamic context will be decisive for the survival and recapturing of the past market positions.

The tourism development policy is, by its very nature, one of the most complex policies and, furthermore, one of clear territorial relevance. Tourism is developed within territories with attractive natural and geographic characteristics, it has a large impact on the territory and the components of the environment where tourist infrastructure and substructures occupy large areas. Attractive natural and cultural assets have their values realised through tourism. The socioeconomic dimensions and impacts of tourism have been proven to stimulate the economy and to unlock various jobs.

In 2019, the direct, indirect and induced impact of travel and tourism⁸ were: 8.9 trillion USD (10,3 %) contribution to the world's GDP, 330 million jobs (10 % of the total), almost a trillion USD in capital investments (4.3 % of all investments). In short, 2019 was another year of strong growth in the tourist sector, reaffirming its role as a driver of economic growth and employment.

After the unexpected pandemic shock in the first half of 2020, a careful, step-by-step creation of a new policy to restart travel and tourism began. The UN World Tourism Organisation (UNWTO)⁹ expects the numbers of foreign tourists to decline between 60% and 80%, leading to lost export revenues between 840 and 1 100 billion euros worldwide. The talks of recovery periods and recovery plans began even before the crisis started to abate. It is important to note that no country has questioned the structural importance of the sector for its economy.

On an European scale, the tourist sector remains firmly the third largest after retail and construction. Europe has a thriving tourist ecosystem. Tourism employs a wide variety of services and jobs organised mainly within small and medium-sized enterprises. Travel, transport, hospitality, recreation and culture sites generate almost 10% of the EU's GDP and are an important source of employment and income in many European regions. More than 267 million Europeans (62% of the population) take at least one private trip for vacation purposes every year, while 78% spend their vacations in their home country or another EU state. Europe maintains its top spot as a global tourist destination. The attractiveness of European tourism comes from the cultural and historical heritage, natural assets, diverse landscapes, quality services and good connectivity/accessibility.

Addressing the pandemic crisis, on 13.05.2020 the EC published a package of *guidelines and recommendations* to help Member States gradually remove their travel restrictions and allow the

⁸ World Travel & Tourism Council

⁹ https://ec.europa.eu/bulgaria/news/tourism-and-transport-package-13may2020_bg



tourist businesses to restart after the many months of interruption while adhering to the required sanitary measures¹⁰.

On a national scale, in 2019 the total contribution of tourism was about 11% of the GDP and more than 10% of employment. In the same year, the number of visits by foreign tourists for vacation purposes was more than 5,9 million (compared to 5,5 million in 2017). The revenues from inbound tourism reached more than 3,7 billion euros, with a total number of visits by foreign tourists of more than 9,3 million in 2019. All the above indicators showed an *upward trend*. In the 2019 World Economic Forum's Travel & Tourism Competitiveness Index (2019 edition)¹¹, Bulgaria again moved up the ranks. Our country rose from 49 in 2015 to 45 in 2019 among 140 ranked countries. Bulgaria's high ranks on some indicators of this composite index are worth mentioning. For instance, the country is ranked fifth in „hygiene and health“, 12th in „tourist infrastructure and services“ and 19th in „environmental sustainability“.

The progressive development of the national tourism is an encouraging fact, but in parallel there are serious negative factors - threats to the sustainable development of both established and new destinations. These are the *aging population, high unemployment in the periphery, poverty, crime, climate change, the increased pressure on natural resources, political instability* in the region. This context is politically acknowledged and institutionalised in the sector's strategic document - National Strategy for Sustainable Tourism Development in the Republic of Bulgaria, 2014 - 2030 (updated version 2017). In 2019, the EU countries continued to be the most important market generating international tourism to Bulgaria.

Among the strengths of the Bulgarian tourism in recent sectoral analysis¹² are: „excellent conditions for alternative tourism, e.g. culture, eco-, rural, adventure, wine, sport, festival, event and urban entertainment tourism; the territorial proximity of the nature and culture sites and the possible combinations of recreational activities in time and space; the fully established and operational engineering and tourist infrastructure; the strong motivation of the local communities for cooperation and enhancement of their tourist services; the opportunities for development of a traditional product within a traditional environment; the high level of satisfaction with the experience at the destination“. In the same analysis, among the weaknesses are outlined: „seasonality and uneven loads of the destinations, the extensive use of tourist resources with a more adverse impact on the environment; the low annual average occupancy of the bed capacity, the low average tourist-day revenues with a downward trend in the booking durations, the lack of clear commitment to the policies for protection of the environment, the biodiversity and adaptation to climate change; significant share of the „grey sector“; difficult access to culture assets and attractions; deficiencies in the information management and marketing“.

Knowledge of the sector allows to address the above picture to the Bulgarian CBC area too.

Tourism is a national priority and hope for growth in more than 150 municipal plans and yet, only in some 30 municipalities, it is present as a structural element of the local economy. The same

¹⁰ https://ec.europa.eu/bulgaria/news/tourism-and-transport-package-13may2020_bg

¹¹ <https://reports.weforum.org/travel-and-tourism-competitiveness-report-2019/country-profiles/#economy=BGR>

¹² National Strategy for Sustainable Tourism Development in the Republic of Bulgaria, 2014 - 2030 (updated version 2017)



municipalities are the leaders in terms of sold overnight stays, accounting for more than 90% of the total volume of overnight stays in Bulgaria. Non of them belongs to the subject area. Instead, the contribution of the Bulgarian CBC area to the national tourism is modest (4,5%) and in 24 out of total 69 municipalities in the area there are no registered tourist activities.

Serbia – national context

Similar to the neighbouring Bulgarian market, the tourist sector of the Republic of Serbia experienced a steady growth in the pre-pandemic period. According to the WTTC report “SERBIA 2020 ANNUAL RESEARCH: KEY HIGHLIGHTS”, tourism has contributed 5,9% to the national GDP, 6,2% to employment and 7% to the total exports.

The Republic of Serbia is not a mass-tourism destination. Instead, it relies on various alternative forms of tourism based on rich natural and cultural heritage. Attractive natural complexes in mountains and SPAs are the focus of the offered tourist products mostly „consumed“ by domestic tourists. Foreigners are attracted mainly to the capital city of Belgrade, offering the whole variety of cultural, business and shopping tourism. Generally, products of cultural and wine tourism dominate on the Serbian tourist market.

The most famous mountain resorts are Kopaonik, Stara Planina, and Zlatibor. There are also many SPAs in the Republic of Serbia, the biggest being Vrnjačka Banja, Soko Banja, and Banja Koviljača. The set of tourist offers is enriched with natural wonders like Đavolja varoš, pilgrimage tours to Orthodox monasteries across the country and Danube river cruising.

The CBC region

Due to belonging to the same geographic system, the natural resources in both parts of the CBC region form analogical tourist resources. It is enough to mention common mountains (like Western Balkan Mountain) and common rivers (like Nishava and Timok). The Danube river could be the domain for common tourist products of both neighbouring districts Bor (Serbia) and Vidin (Bulgaria). In both countries, the spatial distribution of tourism resources is characterised by a high degree of overlap and territorial proximity of natural and cultural sites. This geographical specificity is an important competitive advantage in the creation of tourism products. This allows to combine different recreational activities, provides an opportunity to overcome seasonality and increase the usability of the tourist superstructure. Both, Bulgaria and Serbia have in this area a relatively good tourism infrastructure, active generating markets with increasing demand and considerable untapped potential.

Tourism plays an important role in the economic structure of the Republic of Bulgaria and Republic of Serbia cross-border region. The main factors for its development are the attractiveness of natural sites (mountains, forests, lakes), cultural assets (churches and monasteries, archaeological sites), the availability of various food and beverage industries. A common feature is the fact, that domestic recreational tourism has been developed in this area, but not the international – to a satisfactory level.

Most outstanding tourist centres in the Bulgarian part of the CBC region are Belogradchik (cultural and eco-tourism), Chiprovtsi (cultural tourism), Varshets and Berkovitsa (SPA), Tran (eco-tourism and cultural tourism), Zemen (cultural), Kyustendil (SPA), Sapareva Banja (SPA), Vitosha



(skiing), Panichiste (mountain resort with skiing), Rila monastery (UNESCO site). Similar for the Republic of Serbia CBC part are: Gamzigrad (cultural tourism), Niš and Negotin (cultural tourism), Pirot (cultural tourism), Vranje - Vranjska banja (SPA), Niška banja (SPA), Stara Planina (mountain tourism), Negotin and Knjaževac (Wine tourism) and Sokobanja (SPA and active tourism)¹³. Further, the Iron Gates area connects culture, nature and active tourism like nautics, hiking and biking (Lepenski Vir, Traian,s table, National park Djerdap, Donji Milanovac, Kladovo, Negotin). Zajecar and Leskovac districts offer tourist products too.

Cultural events like Nisvil (Niš jazz festival), Gitarijada in Zajecar (rock festival), Mokranjcevi dani in Negotin (international choir festival), Rostilijada in Leskovac (the biggest food event in this part of Europe) enrich tourist supply and attract considerable amount of visitors – both, local and foreign.

In terms of spatial distribution of tourist activities, there is a substantial difference between the shares of Bulgarian and Serbian parts of the CBC region out of the relevant national totals. Compared by the indicator „overnights spent“ in 2019, the Bulgarian part had 4,5% (1 228 070) share of the total national figure (27 154 791) and the Serbian part had over 3,6 times higher share – 16,4% (1 653 225) out of the national total 10 073 299. While looking deeper into the statistical picture it can be found that in 24 Bulgarian municipalities (35%) and 11 Serbian municipalities there is no registered tourist activity at all.

Table 4: Tourism in the CBC region, 2019

DISTRICTS	OVERNIGHTS	SHARE OF NATIONAL
BULGARIA	27154791	
PROGRAMME AREA BULGARIA	1228070	4,5%
Vidin	67568	0,2%
Montana	74869	0,3%
Vratsa	72236	0,3%
Sofia	798416	2,9%
Pernic	30179	0,1%
Kiustendil	184802	0,7%
SERBIA	10073299	
PROGRAMME AREA SERBIA	1653225	16,4%
Bor	208655	2,1%
Zaječar	759748	7,5%
Jablanica	116502	1,2%
Nišava	249626	2,5%
Pirot	48231	0,5%
Pčinja	89386	0,9%
Toplica	181077	1,8%

The facts and figures above motivate the following assessments and conclusions for the tourist development potential of the subject region:

¹³ Sokobanja has the largest number of overnights in this part of Serbia (SPA and active tourism).



- There are available tourist resources with unutilised potential on both sides;
- There are common geographical and cultural features presupposing potential for common/regional tourist products;
- There are many „white spots“ in terms of municipalities without registered tourist activities – 24 in Bulgarian side and 11 in the Serbian side. It is recommended to make feasibility studies before deciding to invest in tourism there;
- Though the Bulgarian total volume is considerably higher, the tourist function of the relevant CBC region is with much less importance (only 4,5%) compared to the Serbian analogue – 16,4%. This is explained by the uneven spatial development of tourism in the Republic of Bulgaria – big concentration in locations for mass tourism (sea and ski resorts) and scattered small scale locations for alternative forms. The last characterizes the whole Serbian territory, contributing to a more even spatial development of tourism there;
- And the last, though in conditions of pandemic, it deserves to think and plan common tourist products development along with inherent infrastructure because tourism definitely will be among the most efficient recovery instruments after the pandemic is over.

4 LABOUR MARKET

4.1 Employment rate

In general, the labour market in the border area is characterized by low level of employment of the population, low wages, and low mobility of labour force. The employment and unemployment rates of the population at the regional level show fluctuations in relation to the total rates at the country level in both countries.

Table 5: Employment, 2019

DISTRICTS	EMLOYMENT
BULGARIA	70,1%
PROGRAMME AREA BULGARIA	66,3%
Vidin	56,6%
Montana	48,2%
Vratsa	59,8%
Sofia	77,7%
Pernik	70,9%
Kiustendil	67,6%
SERBIA	48,1%
PROGRAMME AREA SERBIA	42,3%
Bor	43,2%
Zaječar	41,0%
Jablanica	40,2%
Nišava	47,0%
Pirot	45,7%
Pčinja	34,4%
Toplica	44,0%

Source: NSI, SORS - <https://www.stat.gov.rs/en-us/>

In general, the average employment rate in the Republic of Bulgaria is much higher (70,1%) than in the Republic of Serbia (48,1%). The Bulgarian CBC districts (with the exception of Sofia and



Pernik) have employment rate below the national average. All Serbian CBC districts have lower employment rate compared to the national average value. Though modest, upward trends have been monitored in both countries till the pandemic crisis.

4.2 Unemployment rate

In comparative plan, *unemployment rate* differs substantially on national level (Republic of Bulgaria 4,3%, Republic of Serbia 10,7%), but disparities on district level are dramatic for Bulgaria (from 1,6% in Sofia and 2,6% in Kyustendil, up to 20,4% in Montana) and relatively more even for the Serbian districts (lowest 13,2% - Bor, highest 21,2 - Toplica). Typical for many other spheres, a positive trend to diminishing unemployment has been monitored in pre-pandemic period in both countries.

Table 6: Unemployment rate, 2019

DISTRICTS	UNEMPLOYMENT
BULGARIA	4,3%
PROGRAMME AREA BULGARIA	7,6%
Vidin	19,4%
Montana	20,4%
Vratsa	7,9%
Sofia	1,6%
Pernic	8,5%
Kyustendil	2,6%
SERBIA	10,7%
PROGRAMME AREA SERBIA	16,4%
Bor	13,2%
Zaječar	15,1%
Jablanica	19,2%
Nišava	15,0%
Pirot	18,8%
Pčinja	15,7%
Toplica	21,2%

Source: NSI, SORS - <https://www.stat.gov.rs/en-us/>

Still the real unemployment related issues are „visible“ at the lower, municipal level. It is considered, that unemployment above 20% hinders seriously local economies. There 16 such municipalities (in red) in the Bulgarian part of the CBC region and 18 – in the Serbian part. Unemployment above 30% blocks the economy and creates extreme pressure on the social system. In the Bulgarian part, there are 10 such municipalities and only 2 on the Serbian part. Further, at 40% and over, there is no local economy and the only employer very often is the municipal administration. The absolute negative record belongs to Ruzhintsi municipality – 54,3% unemployment as of 2019.



Table 7: Extreme unemployment in municipalities, 2019

DISTRICTS	UNEMPLOYMENT	UNEMPLOYMENT	DISTRICTS
BULGARIA	4,3%	10,7%	REPUBLIC OF SERBIA
PROGRAMME AREA	7,6%	16,4%	PROGRAMME AREA
Vidin	19,4%	13,2%	Bor
Gramada	30,7%	15,1%	Zaječar
Dimovo	39,3%	19,2%	Jablanica
Makresh	33,8%	30,3%	Bojnik
Ruzhitsi	54,3%	21,7%	Vlasotince
Chuprene	32,0%	26,0%	Lebane
Montana	20,4%	26,2%	Medveđa
Boichinovtsi	27,1%	23,1%	Crna Trava
Brusartsi	22,2%	15,0%	Nišava
Valchedram	36,5%	20,0%	Niška Banja
Medkovec	31,6%	20,5%	Aleksinac
Yakimovo	42,8%	25,5%	Gadžin Han
Vratsa	7,9%	20,6%	Merošina
Borovan	41,8%	18,8%	Pirot
Byala Slatina	22,9%	22,1%	Babušnica
Krivodol	27,7%	29,1%	Bela Palanka
Roman	21,3%	20,3%	Dimitrovgrad
Hayredin	44,0%	15,7%	Pčinjska oblast
Sofia	1,6%	31,7%	Bosilegrad
Pernik	8,5%	26,5%	Trgovište
Tran	21,5%	21,2%	Toplička oblast
Kiustendil	2,6%	20,2%	Prokuplje
		21,5%	Blace
		22,7%	Žitorađa
		22,2%	Kuršumlija

It is not necessary to go deeper into structural aspects of unemployment in order to make assessments and conclusions, substantial for the future CBC programme:

- Unemployment in both sides of the CBC region is higher than relevant national averages;
- Intra-district disparities are dramatic in the Bulgarian and relatively smoother in the Serbian part;
- There are many hindered and blocked local economies on both sides;
- There are 4 municipalities in the Bulgarian part of the CBC region with extreme unemployment 40% and over, even reaching a „black record“ of 54,3%;
- There is a strong correlation between unemployment, economic performance and demographic processes. The region as a whole loses demographic mass and economic attractiveness;
- District centres are the natural „engines“ of regional economies concentrating most demographic mass and economic activities. Namely they should become the locations for the future integrated territorial investments fostering even spatial development through synergic effects;
- For the poor and weak municipalities should be targeted measures with predominantly social character (to provide fare access to social iservices), reinforced by measures



providing direct employment (as „social enterprises“ for example);

- Obviously, the needs in terms of employment exceed the future CBC programme resources and cooperation should be looked for with relevant national targeted policies to obtain feasible and sustainable results;

The economy, oriented towards innovation, and especially highly innovative start-up companies that offer new solutions with global application, is the option that offers growth and employment for the region of CBC.

5 SOCIAL INFRASTRUCTURE AND SERVICES

5.1 Healthcare

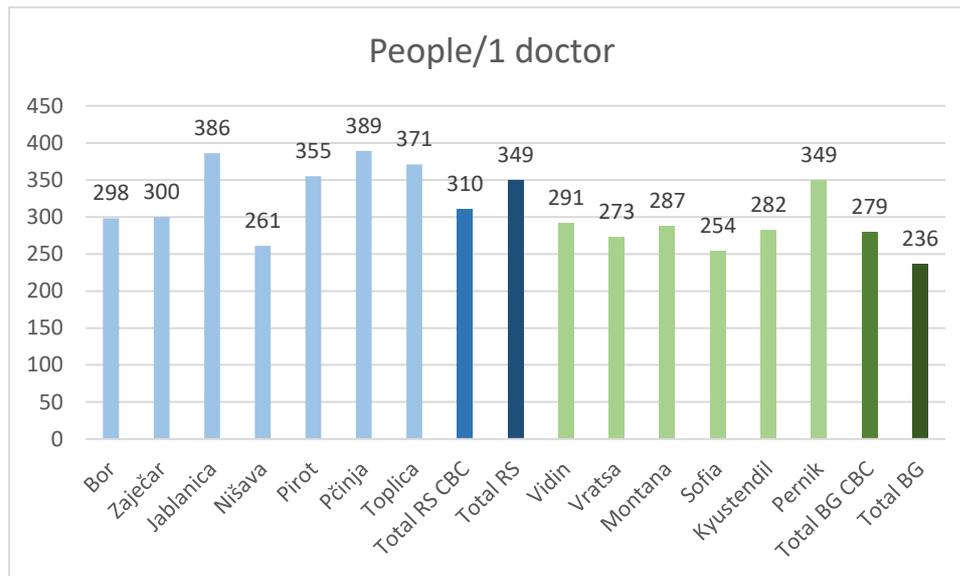
Among the development priorities of the Bulgarian health system, presented in a recent Health System Review¹⁴ is “*overcoming regional imbalances and ensuring the functional interaction between the various levels of medical care, improvement in terms of access and quality, and assuring availability of health services in small settlements*”. Namely difficult and scarce access to health services in remote rural areas is the core problem and hopefully it will be solved somehow after being addressed as a national priority.

In terms of statistics, minding the complex and not sectoral character of this analysis, only two basic indicators have been compared – „people per 1 doctor“ and „people per 1 hospital bed“. The first reveals the levels of availability of doctors and the second – provision of hospital beds. The „people per 1 doctor“ comparison on national level puts Bulgaria in a more favorable position as its’ value (236) is considerably lower than that of the Republic of Serbia – 349. The same refers to both parts of the CBC region, though the difference is smaller (R. Bulgaria 279, R. Serbia 310). The principal difference at CBC regional level is that the Bulgarian part has worse position compared to national, while the Serbian part is in a better position to the national average. On district level disparities are most visible. The lowest value (most favorable position) in the Bulgarian CBC region has Sofia (254) and the highest (the most potentially overloaded doctors) – the Pernik district (349) which is almost 100 more people per doctor. The lowest relevant value in the Serbian CBC region has Nišava (261) and the highest – the Pčinja district (389) which is almost 130 more people per doctor.

Generally, a recent downward trend in number of doctors, dentists (only in the Serbian part) and especially pharmacists is observed in both sides of the CBC region. Issues like ageing among healthcare personnel and mass emigration of young professionals (for better remuneration abroad) are common for both countries too. This makes the healthcare systems vulnerable and puts them in a risk to fail in provision of required high-quality and timely health services in medium to long term.

Figure 3: People per 1 doctor in the CBC Region

¹⁴ https://www.euro.who.int/_data/assets/pdf_file/0005/383054/HiT-Bulgaria-2018-web.pdf



Source: NSI and the Institute of Public Health of Serbia

As of 2018, the CBC region has relied on totally 108 healthcare centers including hospitals, clinics, and healthcare education facilities. Healthcare infrastructure is usually concentrated in district centers being difficultly accessed from remote peripheries especially in mountainous areas. The uneven spatial distribution of hospitals and hospital beds causes discrepancies in both healthcare systems and fails to ensure equitable access to healthcare for all.

A statistical look at the „people per 1 hospital bed“ indicator reveals an almost parity between the two parts of the CBC region, variations being much higher on district level. For the Bulgarian part, the district mostly satisfied with hospital beds is Vratsa – only 99 people potentially rely on one hospital bed. On the other pole is the Vidin district with a concerning value of 247 people per bed. Kyustendil is near with 245. Relevant values for the Serbian part are – Zaječar district in the best position with 97 people per bed and Pirot district in the worst position with a value of 238. The revealed statistical picture serves just for a background and is not a source of deeper insights of both healthcare systems functioning.

Still, in the conditions of Covid 19 pandemic, the capacity of hospitals is crucial but though bed deficits can easily be compensated, insufficient healthcare personnel (especially nurses and doctors) can not be overcoming in a reasonable period.

Table 8: Hospitals, hospital beds and people per bed in the CBC region (number)

Districts	Hospitals	Hospital beds	People/bed
Vidin	2	335	247
Vratsa	13	1 283	99
Montana	5	984	162
Sofia	5	1 717	132
Kyustendil	4	1 011	118
Pernik	14	477	245
Total BG CBC region	43	5807	143
Bor	6	685	162



Zaječar	9	1 090	97
Jablanica	8	845	235
Nišava	20	3 055	118
Pirot	6	352	238
Pčinja	11	878	224
Toplica	5	373	223
Total RS CBC region	65	7278	157

Source: NSI and the Institute of Public Health of Serbia

In conclusion, processes like population decline, ageing and depopulation of some peripheries, aggravated by poorly maintained transport infrastructure, accumulate difficult challenges for the healthcare systems of both countries to overcome. It might be useful and reasonable to plan equipment and staff for mobile healthcare services including a sanitary helicopter for joint emergency operations in difficult access areas in the CBC region.

5.2 Education

Similarly, to the previous topic, here only selected aspects of education systems will be presented - quality of education, access to education and higher education facilities and their capacity.

Quality assessment of education is made periodically worldwide using the so-called PISA instrument (Programme for International Student Assessment) of OECD. The goal of this long-term project is to study the processes in education by scoring students' scholastic performance on mathematics, science and reading. Both, Serbia and Bulgaria are in the "red zone", i.e. in the third group of countries with scores below 450. Serbia is 44th among 77 countries with 442,3 points and Bulgaria 6 places below – 50th with 426,7 points.

In the last PISA '2018 edition, 8442 fifteen-year-olds from 190 schools in Serbia and 6900 students of the same age from 197 schools in Bulgaria participated.

Results for Serbia showed improved performance in reading and mathematics and stable performance in science compared to that from the first PISA test in 2006. As for literacy, 38% failed to reach the basic level. Another 40% failed in mathematics and 38% in science.

Results for Bulgaria were generally worse. Reading remains in a flat trend line at a reasonable level, but in 2018 it was scored by 12 points less than the previous test in 2015. Mathematics' performance improved till 2012 and then starts to gradually lose position – it lost 5 points from the result in 2015. As for science, it undergoes a real collapse by losing 22 points from the previous result in 2015. The education minister has assessed the general results as disappointing and not surprising. Delayed reform in the education system is seen to be among main reasons.

Figure 4: Pisa 2018 worldwide ranking

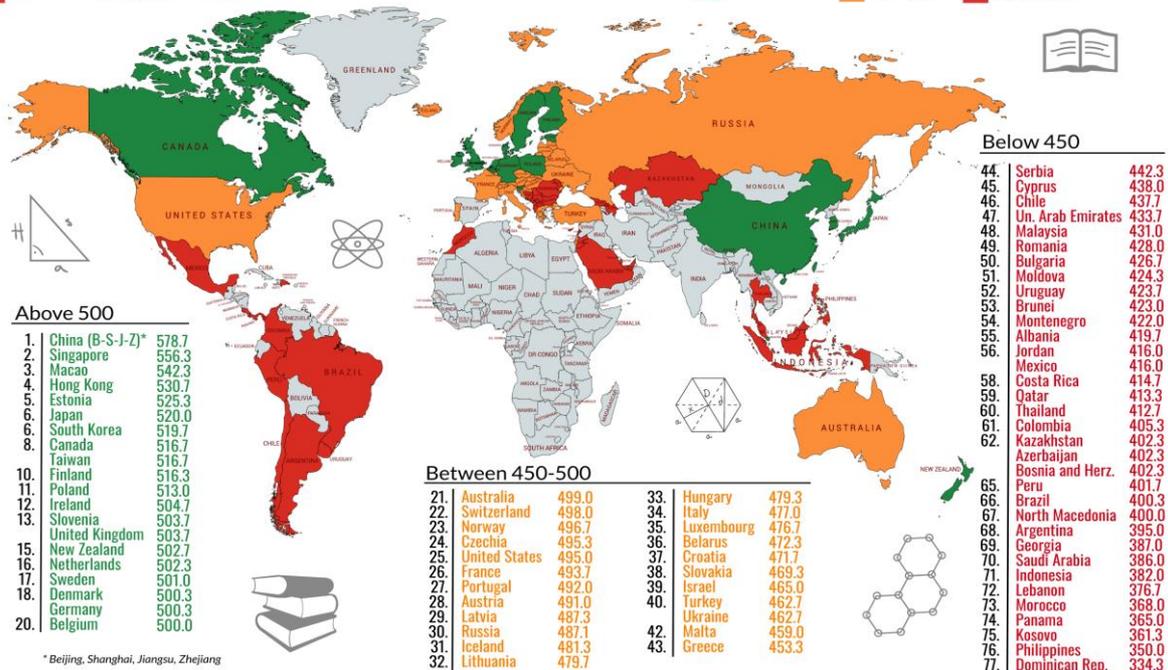
PISA 2018 worldwide ranking

average score of math, science and reading

factsmaps.com

Source: OECD, 2018-2019

above 500 450-500 below 450



Source: <https://i2.wp.com/factsmaps.com/wp-content/uploads/2019/12/pisa-2018.png>

The access to education aspect is strongly related to well established issue of peripheries at all levels – national, regional, municipal. Bearing the typical features of a periphery, the CBC region suffers from uneven access and vulnerability of the education systems. Vulnerability originates from dependency on the so-called community schools and protected schools and kindergartens. The community schools provide a whole-day learning process for children who have left undersized and merged classes. The “protected schools and kindergartens” have namely such classes/groups. Following the permanent population/students’ decrease in the area, requirements for restructuring of school networks are permanent. Travelling students and children are provided for free transport to community and protected school facilities. Still remoteness of some mountainous settlements remains an issue during winter months. Another related issue is the early leaving of school. According to Eurostat, the share of early school leavers in the EU-28 in 2018 was 10,6% (at “Europe 2020” target of 10%) and in Bulgaria it was 12,7%, following a positive trend compared to 2015 (13,4%) and 2016 (13,8%). In comparison with 2013, the share of “early school leavers” on the Serbian CBC part decreased from 8,9% to 6,8%. The closure of educational institutions (especially in small settlements), negative attitude to learning processes and lack of motivation, poverty and other economic and social issues contribute to the negative phenomenon “early school leaving”.

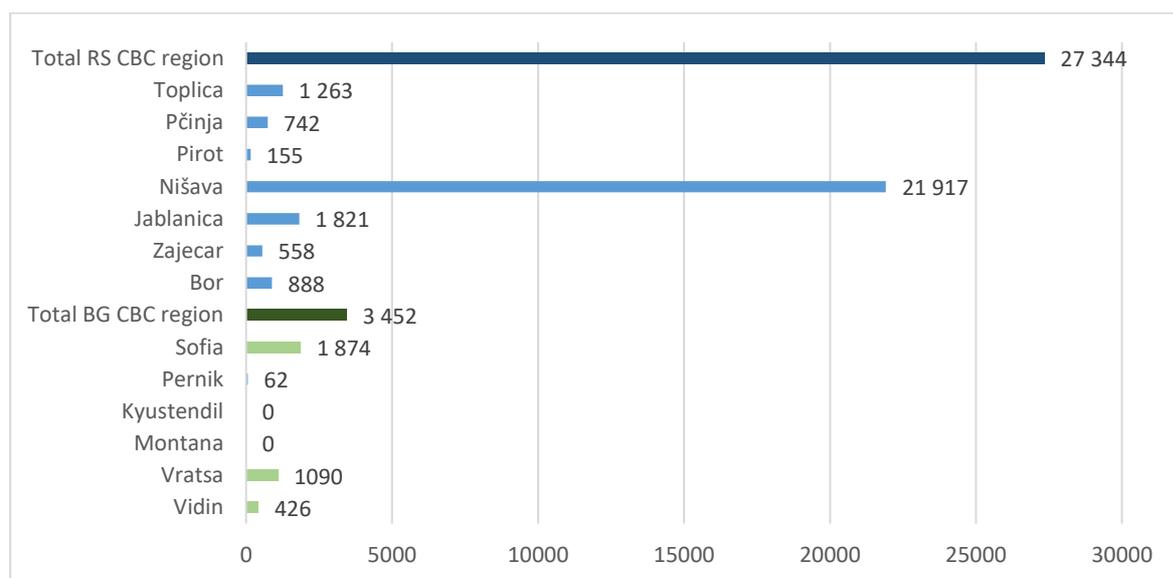
The higher education sector is a crucial provider of high-quality human resources needed for both – education and economic development. In both countries/regions, the number of students enrolled in universities continues to decrease, mainly due to demographic trends. In addition, most of the young people prefer to continue their education abroad. Therefore, the Strategic Framework

for European Political Cooperation in Education and Training (ET 2020)¹⁵ sets additional general objectives for lifelong learning and mobility, equality and social cohesion, fostering creativity, innovation and entrepreneurship at all levels of education and training, in order to overcome the deficits in the education system.

Comparing data for the years 2017 and 2018 indicate a decrease of teaching staff in primary and high schools for some districts. For Serbian CBC territory the availability of teaching staff is a problem in rural and remote areas. Though inconsiderable, an increase of teaching staff is observed in the Bulgarian CBC part.

The share of higher schools/universities to the total number in the respective country is much better on Serbian territory but the proximity of Sofia city has to be taken into consideration (almost 25% of all universities are located there). Spatial distribution is rather uneven on district level as Montana and Kyustendil have neither higher education facility, nor students. Though with considerably varying numbers, all Serbian CBC districts have some students in higher education facilities. The outstanding university center in the Serbian CBC part is Nišava with almost 22000 students in 2018/2019.

Figure 5: University students 2018/2019



Source: Territorial analysis, MRPW, 2021

Education and training can help increase employment opportunities and make it easier to adapt to emerging sectors in the context of globalization. Targeted measures are needed for social integration of disadvantaged groups. In this respect, initiatives for partnerships between school and economic units have to be further supported in order to achieve a better integration of the youths on the labor market.

¹⁵ <https://uil.unesco.org/es/node/6738>



In conclusion to this section, the following assessments can be summarized:

- Due to continuous negative demographic processes, the number of school facilities and students continues to decrease, requiring permanent restructuring of school networks;
- Considerable shares of children on both sides are not covered by pre-school education;
- Shares of early school leavers decrease in both sides but the Bulgarian is still much higher than the Serbian;
- The number of university students in the Serbian CBC region is much higher than that in the Bulgarian part, but the vicinity of the Sofia city compensates the difference. It can be stated that both CBC sides are well provided for potential higher education staff;
- Attractive employment and decent remuneration are decisive factors when young specialists choose a location to establish; Migration abroad or to bigger cities and not availability of higher education facility is the big issue;

A new challenge aggravating education results is the distance/virtual form of training/learning imposed by recent and continuous lockdowns caused by the Covid19 pandemic.

5.3 Culture and cultural heritage

If economy is the base, culture is a superstructure of any society. Cultural values accumulated through centuries constitute the cultural heritage – tangible and intangible. The Cross Border Orientation Paper for IPA CBC reports about high quality potential of natural and cultural assets in both parts of the CBC region. Natural heritage consists of values as natural parks and reserves and numerous attractive complexes of water, vegetation, rocks and relief wonders. Cultural heritage covers a wide range of numerous cultural sites, religious cloisters, churches, archeological sites, historical artefacts and folklore.

Culture is among the most important factors in the cross-border cooperation framework, since it provides a clear view of common features and provides a common identity for the region. It is a potential for attractive tourist products and an instrument for accelerated regional development. All human history epochs (Neolithic, Mesolithic, Paleolithic, Thracian, Roman, Byzantine and Medieval) have piled up cultural layers, facts and values. Regional specifics and varieties in both CBC region parts add attractiveness to this asset for CBC cooperation and development.

5.3.1 Intangible cultural heritage

Intangible cultural heritage¹⁶ is the “face and soul” of a nation, the tool for identity and a “bridge” to transmit certain culture and historical memory to next generations.

Many cultural forms of expression such as music, dance, the spoken word, rites, annual village and town gatherings or traditional cultural skills are threatened by extinction. Various objective reasons explain this vulnerability and only artificially maintained forms can guarantee some sustainability.

¹⁶ It includes: the spoken tradition and languages, customs, rites, celebrations, rituals, beliefs, music, songs, dances, culinary and enology traditions, traditional crafts, traditional medicine, traditional games and sports.



Bulgaria registers various elements in UNESCO's representative list of the intangible cultural heritage on a regular basis and 5 of them have been approved by 2019. Four of them are located in the Bulgarian part of the CBC region¹⁷. In addition, the cultural institution "Chitalishte" (Community Cultural Centre) serves educational and enlightenment functions, providing venue for local talent groups and enjoy the reputation of a robust cultural institution with a specific mission to preserve and develop traditional national values. Having preserved their social legitimacy and flexibility since more than 150 years, and thanks to their even spatial distribution in the country, those community centers continue to meet the cultural, information and social needs of all local communities in Bulgaria.

All three elements included in UNESCO's representative list of the intangible cultural heritage of Serbia belong to the Serbian part of the CBC region¹⁸. Beside this, there are few other registered elements of intangible cultural heritage from the CBC region like carpets from Pirot, kackavalj cheese from Pirot, Belmuž (traditional food from Knjazevac).

Apart from the inherent local "consumption", cultural institutions have promoted this heritage to attract the interest of visitors and tourists in Serbia and Bulgaria. It is believed that current pandemic related restrictions will be soon released to give a new chance more and more tourists to share local cultural events/festivals.

5.3.2 Tangible/immovable Cultural heritage

A vast number and variety of important, archaeological, architectural and historic monuments of cultural importance exist in the whole border region. Remains from ancient civilizations can still be found in many places on both sides of the border. Ancient architecture, where it is preserved, has many similar features. The diversity of historical periods and cultural values, national parks, numerous reserves and natural landmarks are a prerequisite for socialization and valorization through tourist products in Bulgaria.

For the purposes of this analysis, only the most highly valued sites of world and national cultural heritage are mentioned. The UNESCO List of World Cultural Heritage includes 10 sites registered in Bulgaria (7 cultural and 3 natural heritage sites)¹⁹: the cultural reserves Boyana Church (1979), Ivanovo Rock Churches (1979), Kazanlak Tomb (1979), Madara horseman (1979), Nesebar - Old Town (1983), Rila Monastery (1983), Thracian Tomb of Sveshtari (1985). The other 3 are nature reserves - Pirin National Park (1983); Srebarna Nature Reserve (1983); Ancient and Primeval Beech Forests of the Carpathians and Other Regions of Europe (2017).

Serbia is a country of nature and cradle of culture representing a geographical connection between Central Europe, Mediterranean and Eastern Europe. There are five (5) cultural world heritage sites

¹⁷ "Baba Marta", "Surva folk feast in Pernik region", the tradition of carpet-making in Chiprovtsi and "Bistritsa Babi, archaic polyphony, dances and rituals"

¹⁸ Singing to the accompaniment of the Gusle (an ancient art of performing heroic epics, a form of historic memory and expression of cultural identity); Kolo, traditional folk dance; Slava, celebration of family saint patron's day. Slava and Colo refer to the whole country.

¹⁹ Source: UNESCO <https://whc.unesco.org/en/statesparties/bg>

in Serbia²⁰ - the cultural reserves Stari Ras and Sopoćani (1979); Studenica Monastery (1986); Medieval Monuments in Kosovo (2004); Gamzigrad-Romuliana, Palace of Galerius (2007) and Stećci Medieval Tombstone Graveyards (2016).

In the programme area, there are two World Heritage cultural sites or natural sites - Gamzigrad- Romuliana, Palace of Galerius in Serbia and Rila Monastery in Bulgaria.

Rila Monastery is the largest and most famous Eastern Orthodox monastery in Bulgaria. It is regarded as one of Bulgaria's most important cultural, historical and architectural monuments and is a key tourist attraction for both Bulgaria and Southern Europe.



The Roman memorial complex of *Gamzigrad-Romuliana, Palace of Galerius*, in the east of Serbia, was commissioned by Emperor Caius Valerius Galerius Maximianus, in the late 3rd and early 4th centuries. It was known as Felix Romuliana, named after the emperor's mother. The site consists of fortifications, the palace in the north-western part of the complex, basilicas, temples, hot baths, memorial complex, and a tetrapylon. The group of buildings is also unique in its intertwining of ceremonial and memorial functions.

Source: <https://whc.unesco.org/en/list/1253/>

Most of the cultural heritage monuments are in disrepair and require enormous investments for restoration and preservation. In the past years a lot has been invested in culture preservation but still there is a need of further conservation of cultural heritage.

The UNESCO Tentative List of World Cultural Heritage²¹ includes 16 tangible immovable sites in Bulgaria and 12 in Serbia among which one cultural/historic landmark is located in the CBC area –

²⁰ Source: UNESCO <https://whc.unesco.org/en/statesparties/rs>

²¹ <http://whc.unesco.org/en/statesparties/BG>



Frontiers of the Roman Empire - The Danube Limes in Bulgaria and Frontiers of the Roman Empire (for Serbia).

The Roman Limes section in Bulgaria Limes is about 471 km long and runs along the river Danube through the regions of Vidin, Montana, Vratsa, Pleven, Veliko Tarnovo, Russe and Silistra including 33 sites out of which 9 are located in the eligible area, as follows:

- Vidin District: Vidin (Bononia) Roman town and Roman town Colonia Ulpia Traiana Ratiaria;
- Montana district: Ancient town and necropolis Aimus and Roman fortress Cebrus/Kebros;
- Vratsa district: Roman fortress Regianum/Bigrane, Ancient fortress Augustae, Ancient fortress and prehistoric settlement, Roman quarry for limestone and Roma fortress Valeriana;

The Serbian Limes Section starts at Neštin, close to the Croatian border, and ends at Rakovica (Dorticum) and is 588 km long including in total 60 sites out of which 24 located in the CBC area as follows: 17 sites in Kladovo municipality and 7 in Negotin municipality.

An addition to the Serbian UNESCO Tentative List of World Cultural Heritage, the *Negotinske Pivnice* should be mentioned as located in the CBC area. Those are a rural compound (settlements consisting of wine cellars) which are located in the Negotin Frontier area. These cellars and the wine were incorporated in many birth and burial rituals. Negotinske Pivnice with partially preserved vineyards are a testimony of the local population's tradition of continuous growing of vineyards from the Roman times up to the present day.

Further, selected sets of immovable cultural heritage objects will be presented, illustrating archaeological, historical, architectural, artistic, urban etc. cultural values, routes or simply favorite places to visit²²:

Serbia

- *Bor district* - Kladovo Fortresses Dijana and Fetislam, Djerdap national park, Lepenski Vir²³, Trajan's Bridge and Trajan's Table, Lazar's Cave, Rajko's Cave, the relief of Zeus, Herakles and Dionysos found in Bukovo, Serbia Zijin Bor Copper, formerly known as RTB Bor (a copper mining and smelting complex located in Bor); Sarkamen - a roman residential fortification in Negotin Municipality; Mediana (Roman residential complex), Plčnik (late neolithic settlement), monastery Prohor Pcinjski; Rudna Glava one of the first metal mine in Europe;
- *Zaječar district* - Felix Romuliana (Galerius' Palace), Bogovina Cave, Timacum Minus, Soko Grad Fortress;
- *Nišava district* - Niš Fortress, Skull Tower (Ćele kula), Niška Banja, Mediana - one of the

²² <https://en.wikipedia.org/wiki/Serbia#Tourism>; https://en.wikipedia.org/wiki/Bulgaria_Zaje?ar

²³ Lepenski Vir is a prehistoric archaeological site located in the strict nature's reserve of Djerdap National Park, which is in the vicinity of Donji Milanovac.



most important Serbian Late Antiquity archeological sites²⁴, Sicevo Gorge, Jelasnica Gorge, Niševačka Gorge; Concentration camp “12 February” and Čegar; Christian Basilica in Nis²⁵

- *Pirot district* - Church of St. Petka, the monastery of St. John the Theologian, Momčilo's Town in Pirot (Kale), Via Militaris remains in Dimitrovgrad, Remesiana in Bela Palanka, Jerma (Erma) river gorge, Stara Planina protected area;
- *Toplica district* - Tower "South - Bogdanova", Monastery of St. Nicholas, “Djavalja varoš” - monument of nature, Pločnik Neolithic Archaeological site; the Church of the Holy Mother and the Church of St. Nicholas in Kursumlija;
- *Jablanica district* - Roman necropolis in Mala Kopasnica, a late Roman-early Byzantine (6th century AD) town of Caričin Grad or Iustiniana Prima, the Jasunjski Monasteries, church of St. John the Baptist, Hisar fortification;
- *Pčinja district* - Marko's Fortress, ancient Turkish public baths, Pasha's House; Prohor Pcinjski Monastery and Archaeological site Kale – Krsevica late bronze age.

Bulgaria

- Vidin district - Baba Vida Medieval Fortress, Bononia (Danube Limes), Belogradchik Rocks, Belogradchik Fortress and Magura Cave, Mosque, Osman Pazvantoglu's Cross Barracks, Jules Paskin's Birthplace, the town of Kula (Castrum Martis)
- Vratsa district - Residential Revival Architecture in Vratsa, Vrachanski Balkan Nature Park and Botev Road Memorial Complex, Ledenika Cave;
- Montana district - Kaleto, Ancient fortress (Castrum ad Montanesium), Chiprovsky waterfall;
- Sofia district - Clock tower in Botevgrad, Trajan's Gate fortress, Elenska Basilica, The Town of Koprivshtitsa Architectural and Historical Reserve;
- Pernik district - Krakra Fortress, St Petka Rock Church;
- Kyustendil district - Rila Monastery, The Stob Pyramids.

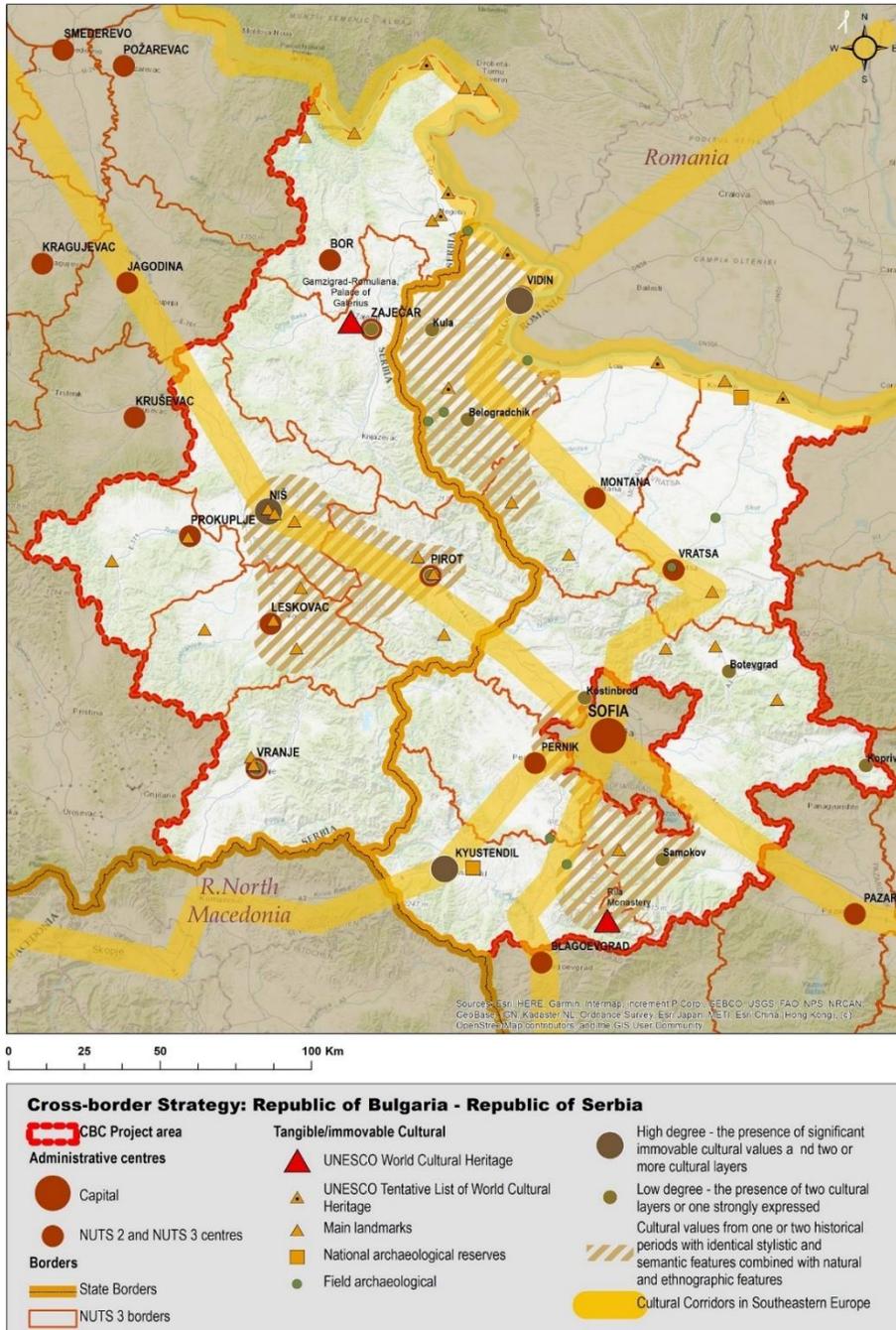
The Cultural Corridor Diagonal road (connecting South East Europe to Asia) passes through the territory of the cross-border region. This cultural corridor is one of the most ancient arteries, of trans-continental, even of world importance. Starting from Central Europe into Slovenia, passing successively through Croatia, Bosnia and Herzegovina, Serbia, North Macedonia, Bulgaria and Turkey, continuing to the Far East. Its numerous branches are on one hand geographically determined (passing the valleys of big rivers, the lowlands between the mountain chains, the convenient passages), striving to the Bosphorus strait. A BG SR CBC project “Via Militaris-A

²⁴ Built between III and the beginning of IV century. It was constructed during the reign of emperor Constantine the Great and his heirs.

²⁵ Among the sites in the presentation of the heritage of Serbia at the World Congress of Early Christianity in Belgrade in 2023

Corridor for Sustainable Tourism Development” has been recently accomplished. More than 30 substantial tourism spots/attractions in SR and BG along Via Militaris (Via Diagonalis), between Niš and Sofia were listed there²⁶.

Map 6: Cultural corridors and heritage in the Crossborder region



Source: National centre for regional development researches

The Western Trans-Balkan Road crosses South-East Europe in a north-south direction. The corridor unites the territories on both sides of the Balkan-Balkan Mountains, passing through

²⁶ www.viamilitaris.net.



Romania, Bulgaria and Greece. The road connects Western and Central Europe with the Aegean Sea and the Mediterranean, intersecting the Danube Road, Diagonal Road, Sofia-Ohrid Road and Via Egnatia. The Western Trans-Balkan Road is a peculiar axis of spread of ancient Greek culture to the north, a specific axis in time, connecting habitats with distinguished cultural values from different historical periods.

Via Trayana Roman Road, built during the times of Emperor Traian in the 1st century AD, crosses the Balkan Range at the Beklemeto-Troyan Pass and connects Mizia with Thrace and the White Sea. It arises in the 2nd connection between the cities of Eskus (Gigen village) and Nove (Svishtov) in the north, through Montemno (Beklemeto-Troyan passage) to Trimontium (Plovdiv) in the south.

The region is rich in diversified culinary traditions and handcrafts. These traditions could play an important role in the promotion and the tourism offer of the region but, so far, are largely underestimated.

In conclusion, the major challenges for cultural heritage preservation are research underfunding, insufficient conservation and maintenance activities. Further, exposure models of many sites deprive them from attractiveness instead of contributing to it. There is a lot to be done in digitalization, filling in a centralized data base, clarification of property/responsibility status, efficient fight against treasure hunting, etc. Here is the place to repeat the thesis motivated in many sectoral analyses and planning documents: “Cultural tourism is among the priorities of the tourism policy due to the huge untapped potential it has”. The CBC region has potentially competitive market niches for this kind of alternative tourism.

5.3.3 Cultural institutions

The performances of theatres, opera and musical theatres, musical collectives (philharmonics, authentic folklore singing and dancing troupes and orchestras) are a token of the rich cultural life of local communities and regions.

In the past few years, the professional institutes of culture were very well developed both in Bulgaria and Serbia. Traditional cultural organizations such as libraries, museums, galleries, community and cultural centres, etc. have a long-lasting presence.

In Serbia there are no data on cultural institutions available at the district level, but at the level of statistical regions. Therefore, for the purposes of this analysis, summary data for the statistical region of Eastern and Southern Serbia is presented, which coincides with the territory of cross-border cooperation between Republic of Serbia and Republic of Bulgaria. For Bulgarian side is provided cumulative value for all six eligible districts (Vidin, Vratsa, Montana, Sofia – district, Pernik and Montana).

Table 9: Cultural infrastructure in CBC area (total)

	Serbian CBC area	Bulgarian CBC area
Theaters	16	8
<i>Shows / Performances</i>	701	867
Museums	28	25
<i>Visits</i>	353 103	673 000



	Serbian CBC area	Bulgarian CBC area
Cinemas	16	6
<i>Attendance</i>	310 560	119 110
Libraries	108	4
Radio stations	39	9
TV stations	52	9

The data collected show that, as far as cultural infrastructure is concerned, it is stagnant, that the number of visits, i.e. citizens meeting their needs, is either the same or slightly increasing. The identified challenges faced by cultural institutions responsible for the protection and public display of items of moveable cultural heritage, in addition to the poor condition of museum buildings and conditions for the storage of collections, include the non-utilisation of modern ICT to enhance the display and socialisation of museum artefacts and the poorly developed links between museums and educational institutions.

6 ENVIRONMENT

Among most important factors having impact on environmental condition in the CBC region (both sides) are pollution of waters and air.

6.1 Air

A basic air related issue in urban spaces of the Bulgarian CBC region continues to be the FPM₁₀ pollution²⁷, caused mainly by heating with solid fuels in winter, treating streets with sand and chemicals, emissions of cars and public transport. Industries are considered to be smaller polluters. The condition of air is monitored by the administrations of the so called Regions for Assessment and Management of Air Quality, within which zones with exceeded pollution norms are registered. In the subject area, such locations are Vidin, Vratsa, Pernik, Pirdop and Zlatitsa.

Based on the 2020 Environment Agency report, in 2018 most exceeds of FPM₁₀ norm have been registered namely in the Bulgarian-Serbian cross-border area – 120 exceeds in Vidin and 111 in Montana.

It should be considered, that air pollutions have only local character and concern only certain parts of settlements. Trans-border pollution to Republic of Serbia is impossible. Generally, the Bulgarian part of the CBC region has clean air, which is a fact, favoring all human activities.

As for the Republic of Serbia CBC region, air and soil pollutions are caused by unregulated releasing of waste waters, by some industries, by traffic, misuse of agro-chemicals, irregular collection or throwing of waste on illegal dump sites.

The air monitoring facilities are insufficient. Regular measuring of pollution levels is practiced in the municipalities of Vrane, Leskovac and partly in Bujanovac. There are no considerable sources of air pollution or pollution exceeds in the municipalities of Trgovište, Vlasotince, Crna Trava, Medveđa, Lebane, Surdulica, Vladičin Han, Bosilegrad, Preševo, Bujanovac and Bojnik

²⁷ FPM₁₀ – fine particulate matter



Spaces close to class I and II state roads have potentially air and noise pollutions caused by traffic. The same refers to railroads, especially in Leskovac and Vrane. Even greater source of pollution are some industries, namely agro-food industry (in Bojnik, Leskovac, Vlasotince, Bosilegrad, Vladičin Han), chemical industry (in Leskovac – complex polluting of water, air and soils), textile industry (in Leskovac and Vlasotince – noise, air and water pollution), construction industry, wood processing and furniture industry.

Highly urbanised spaces like the city of Niš are locations of high PM10 and PM2.5 pollution, especially during winter months. The last peak was on 20.02.2021, when PM10 was 341 mg/m³- 7 times above the norm and PM2.5 337mg/m³-13 times more than allowed. This is mostly caused by individual heating (use of coal or fuel oil) and local traffic. The issue is currently a high priority in the City of Niš agenda. There is significant pollution in Bor too (SO₂ and PM10) due to copper excavation and processing industry²⁸.

Air pollution in the region needs to be viewed through a broader prism. About 70% of the electricity produced by the Electric Power Industry of Serbia comes from thermal power plants, according to the Energy Balance of the Republic of Serbia for 2020. It is a process that starts with coal and ends with our warm homes that are heated by electricity. In order to achieve that, the Thermal Power Plant "Nikola Tesla" (TENT) annually "swallows" about 30 million tons of coal (lignite) which is delivered to TENT daily from the Kolubara mine. Looking at the bigger picture, the issue of heating with electricity in households is an issue of air pollution in the whole Republic of Serbia. Further, the use of coal and fire wood for heating in households dominates in the region. The result is poor local air quality, especially in winter. Poor quality of local air affects quality of life, economic activities and direct investments in the region. The issue poses a serious threat to urban development and potential climate change migration of the Serbian CBC region.

6.2 Water

Surface waters' quality in the CBC region continuously improves during the last two decades. An assessment made in 2017 (by basic physico-chemical indicators) shows that most of monitored sites fall into the category „excellent – good“ condition. Notwithstanding the main trend, there are still some water bodies in risk. They are provided for programmes and measures for improvement of their ecological condition. Water analyses in the period 2017-2018 show that quality of waters in the Republic of Serbia border section of the Danube river meet the requirements for „good/excellent“ condition. As for the Timok river (water body BG1WO100R001), its condition continues to be bad. The 32 km section in the Bulgarian-Serbian border area is continuously and heavily polluted with metals. The source is in the Republic of Serbia.

As for the biological condition of *surface waters* in categories „bad – very bad“ are some dam lakes along the Ogosta river (Trikladentsi and Barzina), along the Lom river (Poletkovtsi, Rasovo, Hristo Smirnenski) – it is a long lasting bad condition. As for the big and water supply dam lakes, their condition varies in the „good – excellent“ condition scale.

²⁸ Information provided by the Regional Development Agency "South", Republic of Serbia



Groundwater bodies traditionally suffer from nitrate pollution notwithstanding the continuously increasing control on fertilizing. Regular exceeds of medium nitrate concentrations are registered mainly in the most shallow groundwater layers of Bregovo – Novo selo lowland along the Danube river and in alluvial river sediments.

In the recent two decades a gradual improvement (in basic indicators) of groundwater bodies is observed. Only accidental exceeds of heavy metals have been registered during this period – manganese along the Vit river and in some locations of the Sofia valley and Panagurishte region. The average annual exceeds of the indicator „sulfate ions“ are registered in Sofia Valley and Samokov Valley.

As for the Serbian CBC region, most surface flows, springs and lakes in mountainous areas qualified as „not polluted water basins“. Water quality is not so good in valleys and urban areas due to untreated wastewater discharging. The insufficient number of water quality measuring stations hinders a more precise assessments.

The Serbian National Institute of Meteorology and Hydrology performs analyses of some surface waters in the CBC region. One of the monitored objects is Nishava river – profiles „Dimitrovgrad – border“ (II/III class), Bela Palanka (water class III) and Nis (water class II/III). Another monitored object is the Toplitsa river – the Doljevac profile, where the water class is III/IV, i.e. seriously polluted. The Pusta river – Pukovac profile with water class II/III is among the normal quality for a river. Erma and Bankya rivers in the border area have third and second water class respectively.

The water resources availability is favorable for both sides of the CBC region. Due to its diverse relief, the Danube River Basin, has a varied precipitation levels that strongly affect run off and discharge levels in streams. Apart from their commitment to comply with EU water and environmental legislation, R. Bulgaria and R. Serbia are effectively involved in trans-boundary cooperation within the frame of international conventions, particularly within the Danube river basin.

As signatories to the Danube River Protection Convention, both countries have agreed to cooperate on fundamental water management issues by taking „all appropriate legal, administrative and technical measures to at least maintain and, where possible, improve the current water quality and environmental conditions of the Danube river and of the waters in its catchments area, and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused“.

Main rivers that cross the border area are Nišava (218 km), Timok (202 km), Erma (74 km), Struma (275.1 km), Iskar (352.3 km), Ogosta (141,1 km) and Lom (92,5 km). The Danube River, which borders the region to the North, is a natural resource with strong potential for the region.

The Ogosta and Vlasina artificial lakes, as well as numerous smaller ponds, complement the rich water resources of the region. Groundwater (both springs and thermal waters) resources are available across the whole cooperation area. The most significant thermal springs with potential for development of SPA tourism are the ones in the towns of Kyustendil, Sapareva Banja, Varshets, and Rudarci (on the Bulgarian side) as well as Niška Banja, Vranjska Banja, Zvonačka Banja, Soko, Lukovska Banja (on the Serbian side).



Larger part of geothermal energy is used for swimming pools, bathing and balneology. Other small capacity is used for building heating systems, including heat pumps, and a part of the sources are used for direct use greenhouse heating systems. Even though there are still persistent technical and financial difficulties in using geothermal heating systems, a number of projects for geothermal heating station, district heating and geothermal water network in Sapareva Banja and Kyustendil have already been initiated and prepared. The results of those projects is expected to promote the systematic use of geothermal energy both in Bulgaria and internationally, while allowing the region to benefit from the transfer of knowledge of best applicable technology and most appropriate financing mechanisms.

6.3 Soil

Soils in the Bulgarian CBC region are traditionally in a good ecological condition. Among the issues is the water erosion of agricultural land which varies between 6,5 t/ha/y in pastures to 7,1 t/ha/y in the fields and even 20,7 t/ha/y in orchards and vineyards. The largest territories with seventh grade (high to very high) of erosion risk are in the Sofia district – over 200 km².

Unlike water erosion inherent to mountainous and hilly areas, wind erosion appears mainly in large opened valleys without forests. The highest intensity of wind erosion is observed in Sofia city district -1,32 t/ha/y. Stations where exceeds of heavy metals' content are registered are located in the Sofia district (villages Anton, Beli Iscar, Gabra) and Pernik district (Dolni Romantsi village).

Monitoring of soil pollutions has not been performed in most of the municipalities in the valley of South Morava river, Republic of Serbia. Still condition of soil is considered to be predominantly satisfactory with the exception of narrow strips along the motorway corridor and in the vicinity of industrial facilities. Meanwhile, the subject zone is among most threatened by erosion and floods in Republic of Serbia, especially in Preševo, Bujanovac, Trgovište and Medveđa municipalities. In higher parts of the basin erosion is intensive (grade 1 and 2), covering over 35% of total space of the Serbian CBC region. Worse is the erosion issue in Pčinja basin (18% under the impact of extreme erosion).

Radiation is inconsiderable, except in some locations, polluted from NATO bombing in 1999. Partial treatment of such locations has been done, but the issue is that in the course of more than 10 years monitoring has not been performed. It can be stated that the risk of radiation pollution (from depleted uranium) of soil and groundwater still exists.

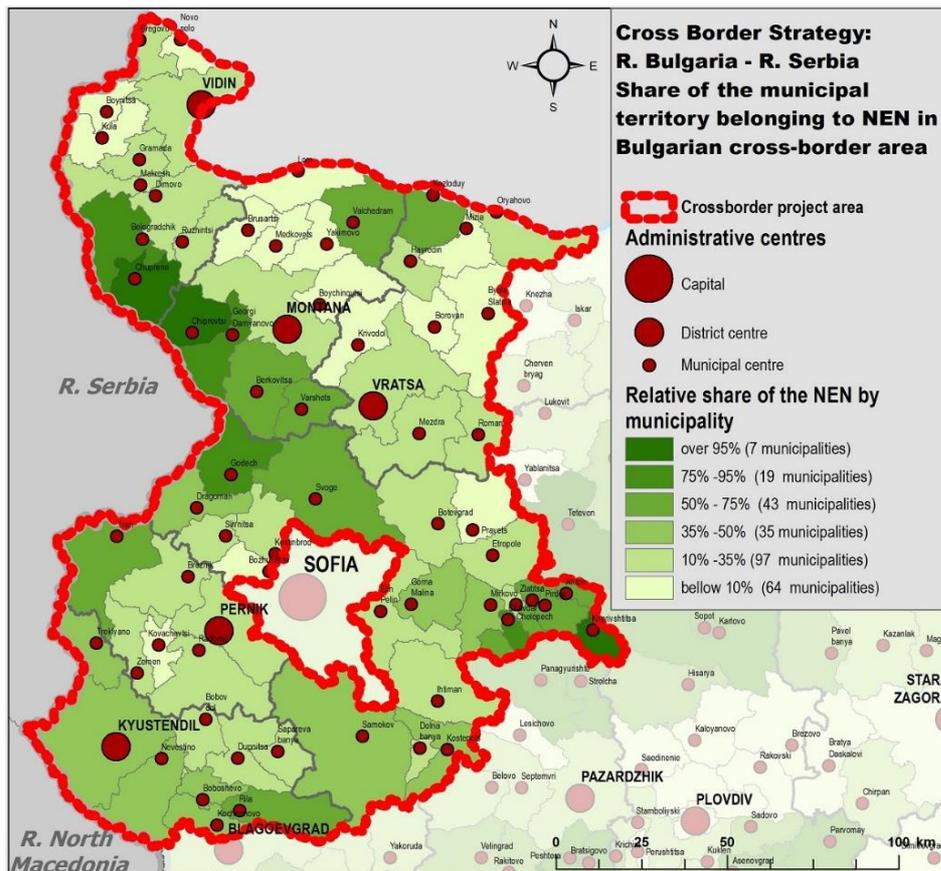
6.4 Protected areas

The *National Ecological Network* (NEN) of Bulgaria comprises of *protected territories* under the Protected Areas Act and protected zones under the Biodiversity Act in compliance with the EU Directive 2009/147 regarding protection of wild birds and Directive 92/43/EC regarding preservation of natural habitats and of wild flora and fauna. Bulgaria has 339 protected zones (actually 352, but 13 have overlapping borders under both directives) forming the Natura 2000 network, which covers 34,4% of the national territory (third largest share among the EU member states).

Under the jurisdiction of „protected territories“ is a share of 5,27% of the national territory. At district level, the lowest share is in Vidin (below 1%) and the largest – in Kyustendil – 11,94%.

Municipalities with the highest share (99% and over) Natura 2000 territories are Chuprene and Chiprovtsi. They possess the highest grade of biodiversity values, but at the same time their whole territories are under restriction regime which hinders many human activities.

Map 7: Share of the municipal territory belonging to National ecological Network (NEN) in Bulgarian – national context



Source: National Concept for Spatial Development 2013 - 2025. Update 2019 (MOEW data)

The Serbian CBC region is covered by the ecological network EMERALD, consisting of zones important for nature preservation - Areas of Special Conservation Interest²⁹.

The list of protected natural values of the Republic of Serbia includes 5 National Parks, 10 Nature Parks, 14 Landscapes of Outstanding Features, 72 Nature Reserves and Special Nature Reserves, 287 Natural Monuments. The majority of afforested land is in Bor District (8% of the national value), Pčinja District (7% of the national value) and Zaječar District (6,6% of the national value).

Nature Park Sićevačka gorge and the landscape of outstanding qualities Vlasina are located in the CBC region. Major Nature Reserves and Protected Areas in the Serbian part are: Pčinja valley,

²⁹ EMERALD network is developed on the territory of the Bern Convention Parties and it represents prolongation of the principles and criteria of the Natura 2000 network in non-EU countries, hence it is an important tool for preparation of countries for their future work under Natura 2000 and implementation of Birds and habitats Directives.

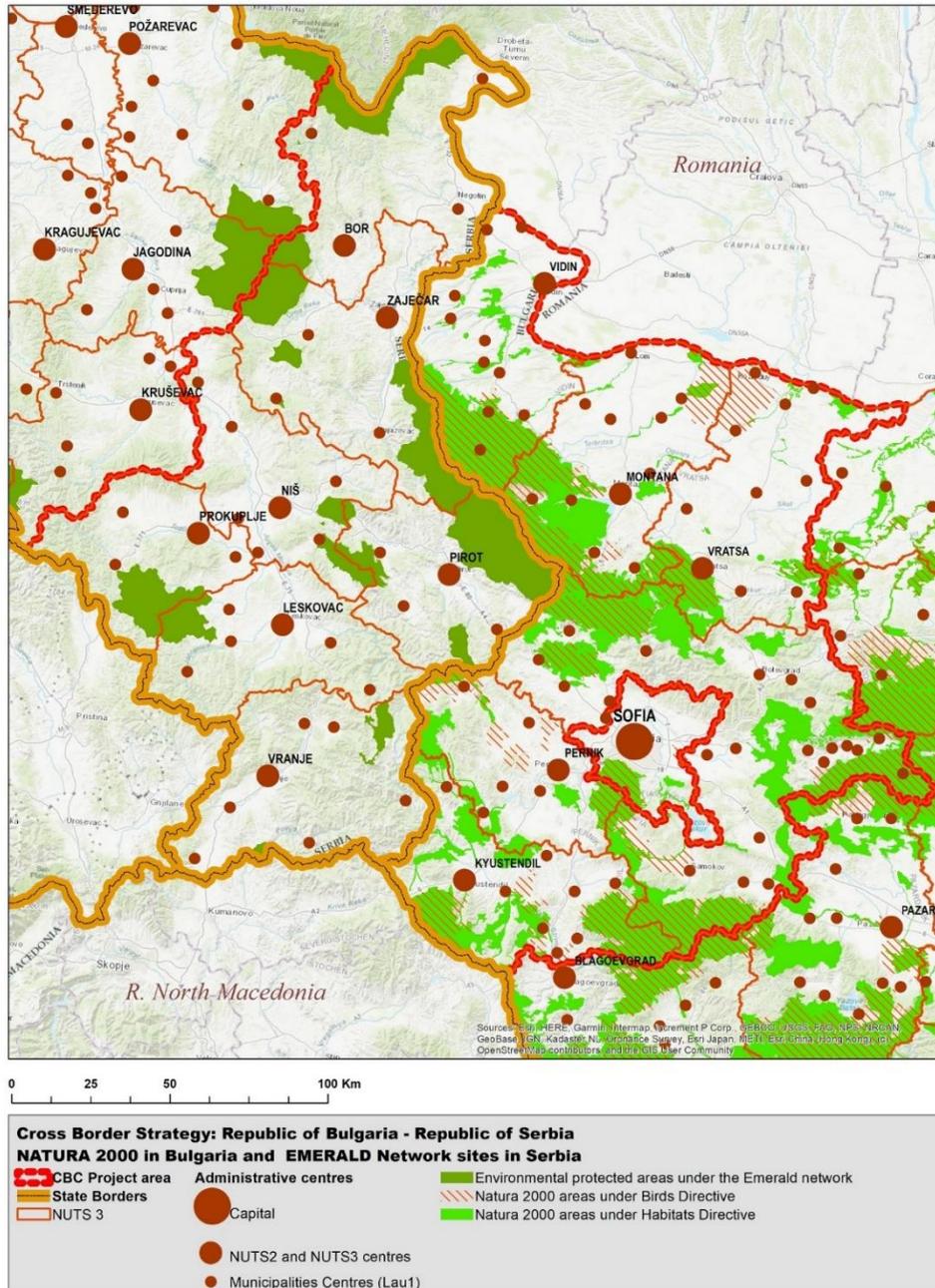


Stara Planina encompassing Zaječar, Dimitrovgrad, Pirot and Knjazevac, Sicevačka gorge around Niš and Bela Palanka, Nature Reserve "Jerma", Lepteriya-Sokograd, Ozrenske Livade near Sokobanja, Vlasina, Radan Mountain encompassing Kursumlija, Prokuplje, Bojnik, Lebane and Medvedja (Ce). The Lazar Canyon is one of the most important centres of plants and trees diversity on the Balkans. The Mali and Veliki Krš mountains are interesting, being the habitat of 11 species of birds of prey that are endangered species in Europe. Surrounding landscape of the archaeological site Gamzigrad is also formally protected as „Area of cultural and historical importance“. The surroundings of the town of Bor represent one of the most interesting geographical locations in Serbia. Other environmentally sensitive spots are located along the border with Bulgaria in municipalities of Majdanpek and Kladovo and in Toplica district and municipalities of Bor and Svrijig. The entire protected area is approx. 300 000 ha in area.

The following protected areas are included in the international lists of importance for nature protection (Decree on the National Ecological Network - "Official Gazette of RS", No. 102/2010): Nature Park Sićevačka klisura, a special nature reserve Jelašnička klisura and Suva planina registered in the List of Internationally Important Ornithological Areas (IBA), the List of Internationally Important Plant Areas (IPA) and the List of Areas Selected for Diurnal Butterflies (PBA). Nature Park Sićevačka klisura and Suva planina are included in the EMERALD network, as part of the European ecological network for the conservation of wild flora and fauna and their habitats. The watercourse and coastal belt of the South Morava is inscribed in the List of Ecological Corridors of International Importance.

UNESCO Global Geoparks are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development. In CBC area we have the first Geopark in Serbia, Djerdap Geopark. Djerdap UNESCO Global Geopark is located in the northeastern part of Serbia. This area is recognized internationally for its geological, but also other natural and cultural values. The approved nomination in 2020 enabled the Djerdap Geopark to become a member of the Global Geoparks Network and European Geoparks Network. The first Geopark in Serbia, Djerdap UNESCO Global Geopark covers an area of 1330 km², including the area of the Djerdap National Park and other protected areas of national and local importance. It spreads over the parts of the territory of four municipalities: Golubac, Majdanpek, Kladovo and Negotin. The most significant natural phenomenon in the area of Djerdap UNESCO Global Geopark is Djerdap Gorge, along which there are numerous geoheritage objects from almost all periods of geological history. This Geopark is characterized by 63 geoheritage objects, while 14 natural heritage objects and 33 cultural heritage objects have been recognized as significant. A part of the National Park Djerdap (Iron Gates) is in CBC area, with headquarters in Donji Milanovac which belongs to Majdanpek municipality, Bor district. This is generally the largest National park in Serbia.

Map 8: NATURA 2000 sites in Bulgaria and EMERALD Network sites in Serbia – cross-border region



Sources: <http://emerald.eea.europa.eu/>;

https://ec.europa.eu/environment/nature/natura2000/db_gis/pdf/BGn2k_0802.pdf

Basic restrictions, regarding natural heritage values are:

- Physical inaccessibility of most protected areas and zones;
- A restrictive concept of using natural resources in protected areas;
- Lack of an adequate compensation system for local communities;
- Insufficient participation of local communities in management of protected areas and zones;



- Conflict of interests among interested parties related to use, preservation and development of such territories;
- Insufficient development incentives.

In conclusion, both counties apply EU legislation for protection of natural values which is a basic prerequisite for implementing of an eco-system approach to exploitation of natural resources in both, protected areas and areas, free of ecological restrictions.

6.5 Climate change

Climate change has substantially increased the occurrence of weather extremes, including heat waves, heavy precipitation, floods and droughts. Climate change is creating risks to, and in some cases opportunities for, the environment, the economy and people.

Bulgaria is among the countries with increased risk of climate change, including all above weather extremes and the negative consequences. In the 1988-2017 period, the annual average temperature of air has raised by 0,85°C for areas up to 800 m altitude, compared to the reference climate period 1961-1990. In 2017, the largest deviations have been registered in Vidin and Montana districts and the most negligible in Kyustendil district. The greatest positive deviations above the norm of precipitations have been registered again in Vidin and Montana districts.

It is clear that climate change should be considered when planning the CBC development and infrastructure, bearing in mind that the total material damage caused by extreme climatic and weather conditions in Serbia, from 2000 to 2015 alone, is more than five billion euros, and that more than 70% of losses are related to drought and high temperatures. Another major cause of significant losses is flooding. Approximately 18% of the territory of Serbia is endangered by floods, including larger settlements, large economic facilities, railways and roads, and some of the mentioned elements of infrastructure are also endangered on the territory of the city of Nis. They caused huge damages in 2014 alone, and according to estimates, EUR 1,35 billion were needed for recovery. Temperatures are expected to continue to rise. From the aspect of rising temperatures, Serbia is very highly affected. Also, it should be taken into account that there will be less precipitation during the summer, but also that there will be more during the other seasons. These expectations, as well as the intensification of other extreme conditions, clearly show that the negative consequences of climate change will be more and more pronounced.

Based on the values of projections of climatic parameters, an increase in the average annual temperature in relation to the projected values by 1,7oC for the period 2011-2040 can be expected in the wider territory of the city by the end of the century. At the same time, the average annual rainfall is expected to decrease by the end of the century down to -13%, while the value of the drought index will increase to an average of 9. With increasing temperature, it is possible to expect an extension of the vegetation period 30 days until the end of the century, but also longer periods of drought. With climate change, there is an increase in the frequency and intensity of extreme climate events, which often lead to direct material or economic losses, the increase of which can be expected in the future. The effects of extreme climatic conditions, such as heat waves, droughts, floods and forest fires, are causing changes and revealing significant vulnerabilities to many biophysical systems. The effects of climate change will vary over time depending on the ability to



adapt to the changes manifested by different social and biophysical systems. Climate change can affect the yield of agricultural crops, human health, transport efficiency, security of energy systems in the CBC region.

Flood risks is among the climate changes with large negative impacts. There are 116 zones in Bulgaria with considerable potential flood risk. Their total length is nearly 4000 km. Vidin and Kostinbrod municipalities are among those with the highest flood risk.

In the Serbian CBC area, the settlements exposed to high flood risk are Doljevac, Niš, Aleksinac, Žitoradja, Bela Palanka, Svljig, Prokuplje, Gadžin Han, Merošina, Kuršumlja, Pirot, Dimitrovgrad and Blace.

6.6 Conclusions on the environment topic

The CBC region between the Republic of Bulgaria and the Republic of Serbia has clean air, that favors all human activities. The basic issue of air quality continues to be the FPM₁₀ pollution. Hopefully it has local character and concerns only certain parts of settlements. Significant PM_{2.5} pollution persists in Niš and SO₂ pollution in Bor. There is no trans-border air pollution.

Quality of surface waters in the CBC region follows a trend of improvement during the last two decades. The Timok river remains polluted with heavy metals, coming from the Serbian side. Quality of the Danube river waters in the Serbian border section cover the requirements for „good/excellent“.

Regarding soils, water erosion is the most pressing issue on both sides of the subject area, especially in mountainous areas. Wind erosion is considerable in plains.

The region has rich biodiversity and reasonable nature protection. Some of the protected sites are on both sides of the border, which is a favorable opportunity for joint presentation, management and use.

On both sides of the CBC region there are many flood risk zones. Only territories adjacent to the Danube river and along the Timok flow are threatened by trans-border floods.

In resource aspect, both country parts can rely on valuable natural heritage with preserved nature and minor ecological issues. Rich biodiversity, clean rivers, thermal springs and attractive natural complexes on both sides are potential resources for joint tourist products.

7 TECHNICAL INFRASTRUCTURE

7.1 TEN-T network

The CBC region is crossed by two of the basic corridors of the TEN-T European transport network:

- The Orient/East-Mediterranean corridor, which connects Northern Germany (Hamburg-Berlin) with Eastern Europe (Praha – Bratislava, Budapest-Timisoara-Craiova-Sofia) and Southeast Europe (Sofia-Thessaloniki-Athens-Piraeus).
- The Rhine-Danube corridor providing the main East-West link in continental Europe. Following the route along the Danube river, it connects Strasbourg and South Germany with Central Europe cities and ends up in the Black Sea port of Constanta (Romania).

The TEN-T network network doesn't cover the Serbian territory. Instead, the Paneuropean corridor 10 is connecting Austria and Greece through Hungary, Serbia and North Macedonia, with connections to Croatia, Bosnia and Hercegovina and Bulgaria. Most of European citizens from middle Europe are using this corridor on their way to Aegean sea and passing through the CBC region. This is a good chance for the region

Figure 6: Ten-T corridors in the area



7.2 Road network

The main road directions of the TEN-T network are formed by roads of international and national importance – motorways and I class roads, carrying the main transport traffic including the transit one.

The Bulgarian part of the CBC region is favored to be serviced by 3 motorways:

- **A2** – motorway „Hemus“: Sofia -V.Tirnovo -Varna, partially covering the route from Sofia through V.Tirnovo and Rousse to Bucharest, which belongs to the basic TEN-T network too.
- **A3** – motorway „Struma“: Sofia – Pernik – Blagoevgrad - border check-point „Kulata“, covering part of the Orient/East Mediterranean corridor
- **A6** – motorway „Europe“ – border with the Republic of Serbia - Sofia, still being under construction.

The first class roads supplement the functions of motorways to integrate the national road network with that of neighboring countries. The Bulgarian CBC area is serviced by the following first class roads:

- **Road I-1** border Romania – Vidin-Montana-Vratsa-Botevgrad-Sofia-Blagoevgrad-Kulata-border Greece (European categorization E79). The road is part of the core TEN-T network Orient/Eastern Mediterranean, with the southern part of the route defined by „Struma“



Motorway;

- *Road I-6* border North Macedonia – Gyueshevo-Kyustendil-Radomir-Sofia-Karlovo-Kazanlak-Burgas – it forms the direction of a part of one of the additional routes, included in the expanded TEN-T network as a connection between the capitals Sofia and Skopje;
- *Road I-8* border Serbia – Kalotina-Dragoman-Sofia-Pazardzhik-Plovdiv-Haskovo-Svilengrad-Turkish border.

In addition, the Bulgarian part of the eligible area is served by second class roads, namely:

- *Road II-11* - passing through the territories of Vidin, Montana, Vratsa and Pleven districts;
- *Road II-81* - between the cities of Sofia and Lom, passing through the territory of Sofia district and Montana district;
- *Road II-13* - passing through the territories of Montana, Vratsa and Pleven districts;
- *Road II-82* - on the territory of district of Sofia-city and Sofia district;
- *Road II-62* - passing through the territory of Kyustendil and Sofia districts;
- *Road II-15* - passing entirely through the territory of Vratsa district;
- *Road II-63* - passing entirely through the territory of Pernik district.

The rest of the second class road sections are below 50 km long and have only local importance.

Table 10: Length (km) and structure of National Road Network in Bulgaria, 2019

Administrative units	Total	Motorway	I class	II class	III class
Vidin	612	0	71	91	450
Montana	625	0	61	159	405
Vratsa	649	0	65	231	353
Sofia	1508	137	318	351	702
Pernik	569	32	58	66	413
Kyustendil	629	44	85	54	446
CBC total	4592	213	658	952	2769
<i>share of road categories</i>	<i>100%</i>	<i>4,6%</i>	<i>14,3%</i>	<i>20,7%</i>	<i>60,3%</i>
<i>share from total BG</i>	<i>23,1%</i>	<i>27,0%</i>	<i>22,7%</i>	<i>23,7%</i>	<i>22,8%</i>
Bulgaria total	19879	790	2900	4019	12170
Bulgaria total - shares	100%	4,0%	14,6%	20,2%	61,2%

Source: NSI

Despite of reasonable quantitative indicators, there are territorial disproportions in the structure of road network and relevant transport servicing in the CBC region. Around 23% of the national road network is located in the Bulgarian CBC area and similar is the share of relevant first, second and third class roads. Motorways have a higher share of national network (nearly 27%) and of road categories in the subject area (4,6%) due to their advanced stage of development in the area of the capital city of Sofia. Meanwhile there are still no motorways in Vidin, Montana and Vratsa districts and even their share of first class roads is lower compared to the national one. Additionally, the spatial structure of the road network in this area does not favor trans-border communication. Cross border check-points, with the exception of „Kalotina – Gradina“, are served by regional roads.

As of 2018, there have been totally 43 275 km of roads in the Republic of Serbia, while in the Serbian part of the CBC programme area the total length of road network has been 10 853 km that makes a share of 25% of the national total.



Table 11: Length of roads in the Republic of Serbia, 2018 (km)

Administrative units	year 2018
Bor	1 470
Zaječar	1 405
Jablanica	1 716
Nišava	1 317
Pirot	1 040
Pčinja	2 688
Toplica	1 216
R. Serbia total	43 276

Source: SORS

Though the road network in Republic of Serbia is quite well developed its quality and technical condition are not satisfactory. In terms of age, 32% of motorways and regional roads are of age 25 years or more. Only 10% were constructed less than 15 years ago. Further, 58% of regional and 54% of local roads are qualified as bad or very bad quality roads. As for the motorways, the situation has been significantly improved with the completion of the A4 motorway from Nis to the Bulgarian border (a 106 km section), as well as sections of the A1 highway from Leskovac (more precisely Grabovnica) to the border with Republic of North Macedonia (more precisely Levosoja) another 74 km. Currently is under tendering procedure the first section of (Niš-Merošina-Pločnik) “Peace Highway”, 385km long, highway which will connect Niš with Kosovo’s capital Priština, Albania’s capital Tirana and end in Durrës on the Adriatic Sea. The construction of the “Peace Highway” in Serbia is co-financed with a €100 million loan by the EBRD, while the EU is providing a €40,6 million investment grant, as well as funding for project preparation through the Western Balkans Investment Framework.

Table 12: Length (km) and structure of National Road Network in the Republic of Serbia

Administrative units	TEN-T & connections	IA roads	IB roads	Density - km/1000 km ²
Bor	0	0	297	200
Zaječar	0	0	166	180
Jablanica	0	74	105	210
Nišava	36	190	46	230
Pirot	52	52	43	170
Pčinja	0	110	88	190
Toplica	0	0	85	140

Source: SORS

Due to the social and economic difficulties in both countries, road maintenance activities have suffered from a lack of funding which has resulted in an increase deterioration of the roads. The majority of the roads are two lane. Those linking smaller settlements and the roads in mountainous and semi-mountainous areas (4-class roads) are in an extremely poor condition. Since 2007 there have been some positive trends in transport infrastructure development, but transport in the region still suffers from a lag in the development of combined transportation and modern logistic technologies as well as from a low level of information technologies of the transport systems.

Summarizing, few general assessments can be made:

- Road networks are relatively well developed on both sides of the CBC region;

- Condition of roads of categories lower than motorways is not satisfactory, being deteriorated to almost equal level in both the Bulgarian and Serbian parts of the CBC region;
- Minding the natural barriers (mountains) along the border in the CBC region, connections of both national road networks are either missing or realized through a low category roads. The only exception is the A4 motorway from Nis to cross border check-point „Gradina – Kalotina“, continued by the „Europe“ motorway to Sofia;
- The most developed cross-border transport and urbanization corridor is „Nis – Sofia“;
- Minding the modest scale of the future CBC programme resources, locations of eventual integrated territorial investments should be looked for along well developed cross-border transport corridors which are usually axes of regional/spatial development.

7.3 Railway network

As of 2019, there are totally 4 030 km functioning railways, including 865 km in the Bulgarian part of the CBC region. The spatial structure of the railway network of the region resembles that of roads as almost each main road route has a parallel railway line. All main railways in BG are included in the TEN-T network and those serving the CBC Bulgarian area are as follows:

- *Railway line 1* - Kalotina-Sofia-Plovdiv-Svilengrad - the state borders with Turkey and Greece; It is part of the „Orient/East Mediterranean“ corridor, main carrier of transit flows from Europe to Republic of Turkey and mostly important for the subject area;
- *Railway line 2* - Sofia-Mezdra-Pleven-Levski-Gorna Oryahovitsa-Targovishte-Shumen-Varna; Included in the TEN-T network as a link between the capital cities of Sofia and Bucharest;
- *Railway line 5* - Sofia-Vladaya-Pernik-Radomir-Dupnitsa-Blagoevgrad-Kulata (border with Greece) – forms a part of TEN-T network as a link to Greece;
- *Railway line 6* - Voluyak-Batanovtsi-Radomir-Kyustendil-Gyueshevo (border with the Republic of North Macedonia).

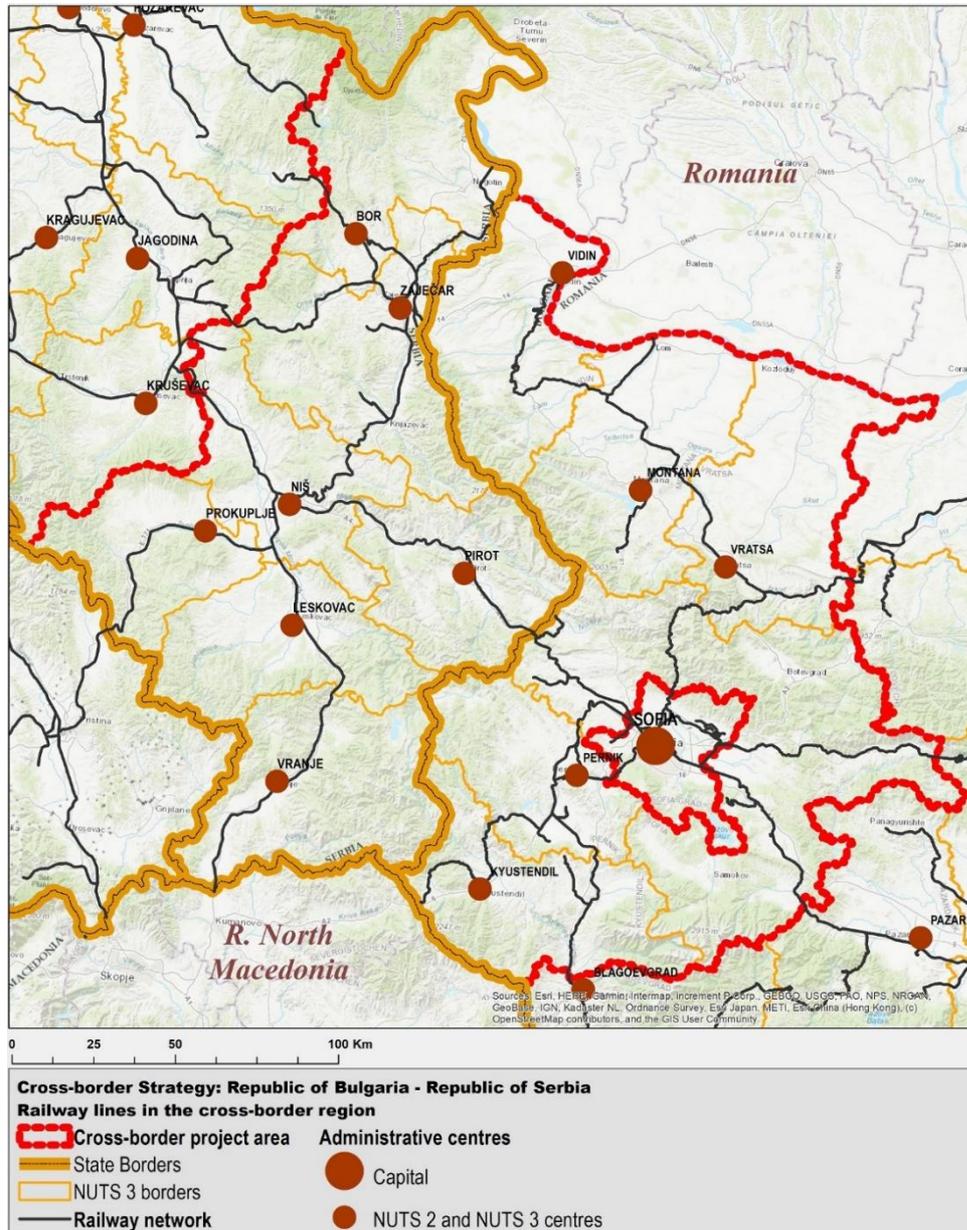
The railway density of the Republic of Serbia is comparable with that of the EU-27. Only about 33% of lines are electrified and 7% are double-tracked. Further, the share of tracks permitting load equivalent to the EU standard hardly reaches 70%. Even the Belgrade - Niš line belongs to the 30% out-of-standard railway infrastructure.

Table 13: Length of railways lines by districts, 2018

Administrative units	Railway (km)
Vidin	108
Montana	114
Vratsa	112
Sofia	295
Pernik	115
Kyustendil	121
Bulgaria	4 030
Serbia	3 739

Source: NSI and SORS

Map 9: Railway lines in the cross-border region



The only railway connection between the two countries (Sofia-Niš-Belgrade) is single-tracked as at present almost fully electrified but has several critical sections where the speed has to be seriously slowed down (parts of the Niš - Preševo and the Niš - Dimitrovgrad lines are designed for speeds of only 80 - 100 km/h). Serbia's main railway lines have been designed for maximum speed of 120 km/h.

The reconstruction of the rail infrastructure in the Bulgarian part of the CBC region is already in progress. The same goes for the Serbian part of the CBC area where modernization and rehabilitation of the section Niš – Brestovac of the international railroad to Thessaloniki (Pan-European Corridor X) is taking place with support of IPA funds (project worth 60 million Euros)

In conclusion, the border area railway network can be qualified as „substandard“ and highly depreciated. Most of the railway lines (including concomitant infrastructure) there need complete reconstruction to cover contemporary standards.

7.4 EuroVelo - European cycle route network

In addition to the TEN-T network in the CBC area passes two of the European cycle routes, namely EuroVelo 13 Iron Curtain Trail and EuroVelo 6 Atlantic-Black Sea. EuroVelo 13 gives the possibility of visiting 20 countries starting in Northern Finland passing near the Baltic Sea, Germany, Czech Republic, Slovakia-Bratislava, Romania and ending in Bulgaria at the small Black Sea town of Rezovo. Following this route for more than 9 950 km is a living history lesson but also provides a welcome reminder of the peace and reconciliation that have followed the fall of the ‘Curtain’.

Map 10: Eurovelo corridors



Source: <https://en.eurovelo.com/ev13> and <https://en.eurovelo.com/ev6>

EuroVelo 6 gives the possibility of visiting 10 countries starting in eastern France passing central European countries (Switzerland, Germany, Austria, Slovakia, Hungary, Croatia), Serbia, Romania, Bulgaria and ending in Constanta (Romania). Following this route there is a beautiful coasts, rivers and castles.

The Eurovelo routes have a touristic purpose, hence they do not link large cities but aim for places with important natural or cultural heritage.

7.5 Border crossings

The CBC region is serviced by 5 cross border checkpoints:

- „Bregovo – Mokranje“ – serviced by a second class road from the district centre Vidin. The access is comparatively good and traffic is not intensive. As the checkpoint is located in the adjacent village, a new one has to be built – to be closer to the border line. Investing in a new checkpoint would be investing in improved cross-border connectivity.
- „Kula - Vrska Čuka“ – it has relatively good access and very low traffic intensity.
- „Kalotina – Gradina“ – located on the main road and railway links between the two countries and is the only checkpoint carrying international traffic. It is among the most important crossing for Bulgaria due to its proximity to Sofia, through which passes the main traffic between Europe and Asia. After completion of the „Europe“ motorway and modernization of the railway „Sofia – Kalotina“, intensiveness of international transit



flows will be increased and connectivity between Republic of Serbia and Republic of Bulgaria – improved;

- „*Strezimirovci*“ – located on the border, in the middle of the divided village of the same name. Access and link to the nearest district centre Pernik are provided by a second class road. There are traditionally well established contacts between the neighboring municipalities of Tran and Surdulitsa on both sides of the border. The checkpoint facility is brand new, but not fully operational yet.
- „*Otomanci – Ribarci*“ – a third class road provides access to this checkpoint and direct links between Kiustendil and Bosilegrad. Traffic is scarce.

A new positive trend for improving regional accessibility is the agreement for opening of three new border crossing checkpoints between the Republic of Serbia and the Republic of Bulgaria: Salash - Novo Korito (crossing at „Kada Boaz“ pass, west from Belogradchik), Transka Bankya – Petachinci (where Yablanitsa river flows into Erma river, still there are many relatives on both sides)³⁰, and Treklyano – Bosilegrad (as others, motivated with close traditional relations between neighboring municipalities).

In conclusion, 4 out of 5 cross border checkpoints between Republic of Bulgaria and Republic of Serbia provide only local and regional exchange of people, goods and money flows. The same relates to the 3 new checkpoints - agreed and not developed yet. There is no capacity there for large scale and intensive traffic, but potential for mutual contacts, business and tourist products exist, which is the essence of cross-border cooperation.

7.6 Airports

The CBC region is serviced by two international airports - one in Sofia-city and the other - in Niš. Though the city of Sofia is out of the eligible area, this still is the only airport on the Bulgarian side of the border region.

Sofia Airport is the largest airport in Bulgaria (being recently equipped with a new terminal and extended runway). During 2019, over 7 mln passengers and 24 thousand tones cargo have been processed. Land access is provided by automobile transport and metro.

The Niš airport is small but developing international airport (the second biggest in Serbia). It was designed for both, cargo and passenger transport. In order to boost its development, the local-self-government subsidized the plane tickets and that attracted several low cost companies. In 2019, the Niš Airport reached the maximum of 422255 serviced passengers in 1967 aircraft operations. Cargo processing reached a peak too. Due to Covid19, operations sharply dropped in 2020. The airport has convenient connections to „Belgrade - Niš – Sofia“ and „Belgrade - Niš - Skopje – Thessaloniki“ corridors.

In conclusion, the centers of both parts of the CBC region are well serviced by air transport.

³⁰ It is very important for CB tourism and locals especially in summer when Gradina/Kalotina pass is crowded with transit to Turkey that prevents locals on both sides to commute and travel for short visits and weekends.



7.7 Inland waterways

If properly used, inland waterways are ecological and cheap transport alternative, adding potential to regional development of adjacent territories. Having an outlet to one of the most important European waterways – the Danube River, the region thus gains a significant advantage. The important ports in the Bulgarian CBC area are as follows:

- *Port of Vidin* – the second largest river port in BG, included in the core TEN-T network on the territory of the country as a part of the transport „Rhine-Danube“ corridor (inland waterway the Danube River with Port of Vidin and Port of Ruse, and intermodal terminal in Ruse). At the same time, this port is also a part of the other corridor of the core TEN-T network passing through the territory of the country, i.e. the „Orient/East-Mediterranean“ corridor (railway and road route in the direction of „Vidin-Sofia-Kulata“ and a branch „Sofia - Plovdiv - Burgas/Svilengrad (Turkish border)“.
- *Port of Lom and Port of Oryahovo* are part of the Vidin port area from the Rhine-Danube corridor, but are included as inland waterway ports in the comprehensive TEN-T network. In addition to general and bulk freight, Port of Oryahovo also serves passengers, and the Oryahovo Ferry Terminal processes ro-ro freight.

The ports in the Serbian CBC region are as follows:

- *Kladovo International Passenger Port* - in January 2017, the Government of the Republic of Serbia established the port area of the international passenger dock in Kladovo. The Port infrastructure - the pontoon, was built with funds from the state budget. At the time, there were no cruise ships at the passenger dock in Kladovo. The port operator has procured a suitable passenger ship and, in cooperation with the Romanian side, is expected soon to establish a regular shipping line between Kladovo and Turnu Severin. The main problems are the outdated facilities and the lack of investments to improve and develop the ports' infrastructure.
- *Port in Prahovo* (Bor District) - located at 861 km on the right bank of the Danube, on the point between Serbia, Bulgaria and Romania. The Port of Prahovo is of an open type and has the operational length of 560 m. The 1 270 m industrial track is connected to the national railway network.
- *Donji Milanovac International Passenger Port* (Majdanpek Municipality) – set in operation in 2016. PUC „Donji Milanovac“ is the current port operator. As the number of berths for passenger ships is steadily increasing, the Port Operator has committed itself to expand the capacity of the port by construction of a new dock.

Recent decades are marked by big fluctuations of the river level in the Bulgarian border area, especially extremely low water levels hindering ships' floating for up to a month in summers. This diminishes efficiency and intensity of water traffic. To overcome the issue, expensive facilities have to be built along the Bulgarian – Romanian sector of the Danube river, which is far beyond the capacity of a CBC programme.

Map 11: Border crossing checkpoints, airports, ports



In conclusion to this section, though the CBC region has strategic location concerning existing and future international transport flows, it is currently not utilizing this potential due to delays in completion and/or refurbishment of basic infrastructure. The lack of continuous and convenient links between BG and RS hinders trade and generally economic development of CBC region as well as social and territorial cohesion within it.

Comparatively low economic development on both sides contributes to permanent underfunding of road maintenance that leads to their increased deterioration. Only 30% of road network in Sofia and Montana districts and 20% in Vratsa district is in good condition. Most of the roads connecting



small towns and villages (third class or municipal) are in bad condition. In recent years some improvements are observed, but still the transport infrastructure in the CBC region lags behind in development of combined transport, introduction of logistics and information technologies.

7.8 Information and Communication Technologies (ICTs)

Gradually, the ICTs are becoming widely available to the public, both in terms of accessibility and affordability. For the last ten years, the share of households with Internet access in the EU-28 has reached 90% in 2019. Unarguably, ITCs have become a major factor and unavoidable tool for social and economic development. Namely here, in the CBC peripheral territory, ICTs can provide an excellent opportunity for normal connection in the border region and to the outer spaces thus mitigating the issue of isolation and difficult access.

After a steady growth of 42% during the last 10 years, the Internet access of Bulgarian households has reached 75,1% in 2019 (90% in EU), out of which, 74,9% broadband internet access. By districts, the highest value of this indicator has been observed in Montana (78%) and the lowest – in Kyustendil – 62,5%. As for RS, its value exceeds the BG one by 5% and has been 80,1% in 2019. Internet access in South and Eastern Serbia is 72,2%. The access to Internet is ensured mostly via local cable provides, but also via ADSL services. In Serbia, even the remote areas have mobile internet network by mobile phone providers, but the problem lays in poverty and ageing of population that doesn't use or can't afford modern technologies (smart phones, computers...).

By rule, most remote and scarcely populated areas, especially mountainous, have difficult communications in all aspect. For them internet access is a crucial alternative to mitigate isolation, including on-line services.

A recent initiative of the EC is to build free high speed wireless internet (WiFi4EU) available at public spaces. After the passed 4 calls, 91% of Bulgarian municipalities have won financing for such infrastructure. Unfortunately, 10 out of total 69 municipalities³¹ in the BG part of the CBC region failed to win. This fact correlates to the common picture, where small peripheral municipalities have high rates of depopulation, low levels of economic activity, hindered access to services and low development capacity, including administrative one.

Summarized, despite recent progress, digital society in the CBC programme area is still lagging seriously behind the EU average.

7.9 Water supply and sewerage

Unlike other aspects the CBC border region favored by plenty of water supply sources. However, the old and mostly asbestos piping fails to provide both – efficiency and reasonable quality of water. In some BG networks, water losses reach 70% and even higher. In terms of access to potable water, almost all municipalities in the BG subject area have above 99% coverage with only few below 90% and just one – below 80%. This is Treklyano – a municipality which bears the characteristics “very small, scattered, mountainous, weak”.

³¹ These are Boinitsa, Novo selo, Chuprene (Vidin dist.), Brusartsi, Medcovets, Yakimovo (Montana dist.), Bobov dol, Kocherinovo, Nevestino and Treklyano (Kyustendil dist.)



The sewerage system is considerably less developed on both sides. The share of BG households connected to the sewerage network is 76% (national average). As a whole, this share is lower in the BG part of CBC region, moreover the statistics is somehow misleading as “connected to sewerage” does not necessarily mean that pipes go to a wastewater treatment plant (WWTP). Thus the risk of polluting surface and underground water bodies is still considerable.

On the Serbian side, the situation is similar - with the exception of Pčinja district, all other CBC districts have lower figures than the national average. At national level, water supply is provided for 88,5% of households. On district level in the CBC region, the figures vary from 50,6% up to 93,4% in Zaječar. As for the sewerage system, it is developed only in the urban centers of bigger municipalities. As in BG, the ecological threat from untreated wastewater in rural areas is considerable. A positive fact is the active policy and efforts of municipalities to obtain resources and invest in both, maintenance and enlargement of water supply and sewer systems. As mentioned above, despite of recent efforts, the region still lags behind the national average indicators on access to WWTP, on waste collection and other basic indicators on environment condition. Some WWT facilities are currently under construction, expecting significantly to improve the environmental situation in the RS part of CBC region.

In conclusion, water supply in the subject area can be considered for a nearly solved problem but the same does not refer to sewer. The common lack of WWTP or other wastewater treatment facilities continues to generate serious ecological problems including pollution of water and soils.

7.10 Waste management

There is a tendency for better implementation of the basic principles of waste management by reducing their volume, reuse and recycling. The unregulated landfills, located near the roads and the entrances of some settlements, are gradually closed down. There is also a change in the waste management - landfill or cell separation is applied to other types of waste to reduce the risk of pollution – of soils, of surface and groundwater.

The solid waste collection and processing is provided for nearly 100% of the BG part of the CBC region. The waste management system relies to 42 functioning municipal landfills. Recent tendency is decreasing of waste in the CBC region.

As for RS, it has rather low waste management standards. According to a report by the SEPA on waste management in the 2011-2017 period, a total of 2,2 million metric tons of waste has been generated, of which 1,8 million metric tons (83,7%) collected by municipal public utilities. Some 20% of generated waste continue to end up in illegal dump sites. There are 164 officially registered municipal solid waste landfills in Serbia of which 24 have a regional character. South and East Serbia region accounts for approximately 28% of all landfills in the country. There is no landfill in the municipalities of Kursumlija, Zitoradja, Gadzin Han and Crna Trava. In fact, only 60% of solid waste is officially collected and the rest is dumped illegally. Many (38) landfills are located either on a river bank or in a vicinity up to 100 m or too close to human settlements.

In conclusion to this topic, waste management in BG part of the subject area covers EU standards while in the RS part it is still one of the most pressing environmental challenges.

7.11 Renewable energy and energy efficiency

To achieve the national target of a 27,1 % share of renewable energy in gross final energy consumption by 2030, both the existing and additional policy measures will be implemented³².

The current energy policies and measures consider the priorities and guidelines of the new European energy and climate policy, as well as the past experience in the area of generation and consumption of energy from renewable sources. The aim is to achieve a cost-effective development of renewable energy as an important part of the EU decarbonisation policy by 2030.

Integration of the renewable energy sector into the total electricity sector development is guaranteed. Thus consumers receive renewable electricity at the lowest possible price. An enabling framework was developed to promote and facilitate the development of renewables self-consumption and establish renewable communities. To ensure wider and annually increasing penetration of renewables in the heating and cooling sector, priority will be given to the commissioning of highly efficient heating and cooling installations, the deployment of innovative technologies using geothermal, hydrothermal and solar energy and the use of waste heat and cold. The use of biomass for centralised and local heat generation will increase in compliance with the EU requirements.

The transport sector has its own goal – to reach a 14,2% share of energy from renewable sources. To achieve it, new generation biofuels, renewable liquid and gaseous fuels of non-biological origin, recycled carbon fuels and renewable energy will be encouraged to get in use of road and rail transport. Consumption of these fuels and energy should contribute to achieving the targets of the policy of energy diversification and *decarbonisation* of the transport sector. To ensure the use of electricity from renewable sources in transport, the government will focus its efforts on the deployment of electric mobility, developing and promoting the use of public electric transport and accelerating the integration of modern technologies into the railway sector.

As of 2020, BG has 3168 (hydro, photovoltaic, wind and biomass) renewable energy power plants with a total capacity of 4255,2 MW. The BG CBC area has totally 306 power plants of all 4 types with 281,6 MW capacity – 6,6% of the national value. The greatest share belongs to hydro and photovoltaic power plants as their total capacity in the CBC area is over 95%. On district level, the highest installed capacity is in Vratsa (61,3 MW) while the lowest is in Pernik (8,7 MW).

Table 14: Renewable Energy: Power Plants - number and capacity for Bulgaria, 2020

Administrative units	Number	Capacity (MW)
Vidin	59	47,90
Montana	34	47,04
Vratsa	50	61,34
Sofia	72	70,47
Pernik	44	8,67
Kyustendil	47	46,14
BG CBC area	306	281,56
Bulgaria	3168	4255,20

Note: The total number includes hydro, photovoltaic, wind and biomass power plants

Source: Sustainable Energy Development Agency (SEDA)

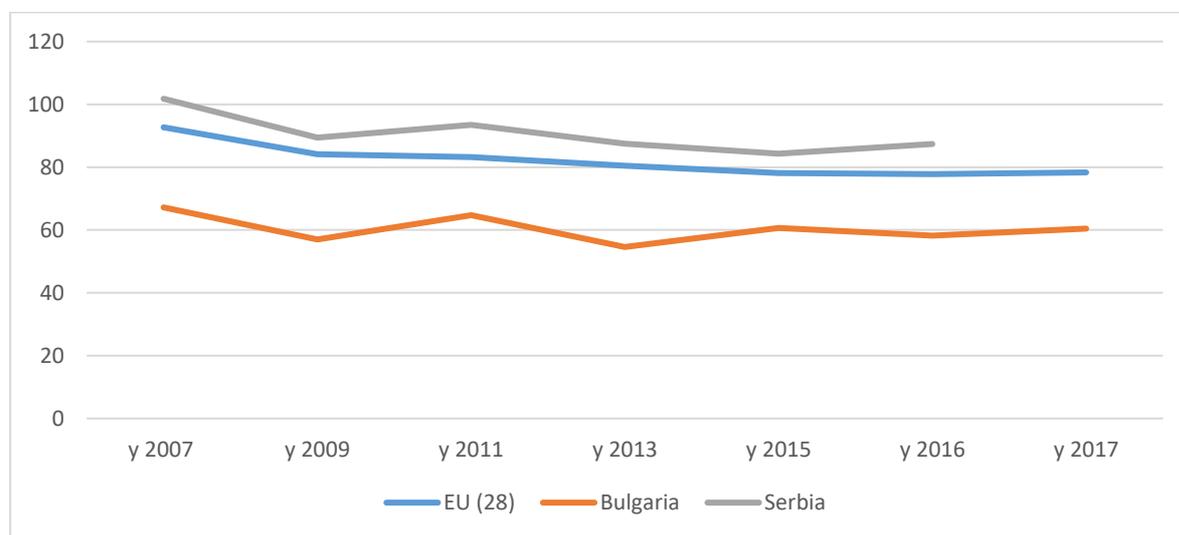
³² Integrated energy and climate plan of the Republic of Bulgaria 2021–2030

As a whole, the natural conditions for production of energy from renewable sources in the CBC area are not so favorable as in other parts of the country. Energy efficiency is a key national policy, but in order to achieve the goals set ahead, the pace of its improvement should be accelerated.

On the active side stay the energy production and on the passive - energy saving. Among the identified areas with greatest energy saving potential are the housing sector, transport, industry, energy generation and transformation processes.

Minding the high efficiency of natural gas (end users need 3 times less energy from natural gas, compared to electricity), development and expansion of domestic gasification hide another great potential for energy efficiency. Still the goal of 30% domestic gasification³³ seems hardly achievable as in 2020, only 5,2% of all Bulgarian households have been gasified. At district level, only Sofia (12,3%) and Kyustendil (7,5%) have values above the national average. Further, the Vidin district has no access to natural gas networks.

Figure 7: Greenhouse gas emissions (in CO2 equivalent)



Source: EUROSTAT

Though in a modest scale, the recent National Program for Energy Efficiency of Multifamily Residential Buildings contributed to energy performance of residential buildings by implementing, among others, thermal insulation measures. As of 26.002.2021, totally 202 buildings have been treated under the program.

A generalized picture of achievements in greenhouse gas emissions' policies of the EU, BG and RS is presented in the Figure 7.

Unlike the steady trend to reduction of greenhouse emissions in the EU, BG and RS demonstrate fluctuations, though the level in both is lower than that in the reference year 2007.

The new law on renewable energy sources in Serbia regulates premiums for new renewable energy capacities, the introduction of auctions, subsidies for small hydropower plants and the status of prosumers and energy cooperatives.

³³ Embedded in the Energy Strategy by 2020



Total electricity production under Serbia's subsidy scheme for privileged power producers, mainly from renewables, doubled in 2019 from 638 GWh in 2018 to 1,361 GWh³⁴.

According to a report produced by the state-owned Electric Power Industry of Serbia (EPS), in 2018 privileged and temporary privileged producers generated the most of electricity in hydropower plants, in wind farms and in natural gas power plants.

The share of RES in total domestic primary energy production is 20%. The largest share of 56% is that of solid biomass, followed by hydro potential (37%), wind energy (5%), while biogas, solar energy and geothermal energy account for 1%. Production and consumption of solid biomass includes firewood, pellets and briquettes (for production purposes electricity and heat). Energy is used to produce electricity large and small watercourses, wind, solar, biogas and biomass. The situation in the field of production and use of RES from the aspect of spatial development is not satisfactory. Problems of protection and improvement of the environment and natural values, especially in the construction of wind farms and small hydropower plants exist. River flows are exposed to great risks of endangering the ecological potential and biodiversity. The regional uniformity of SHPPs is not controlled or directed, a protected natural resources and springs are mostly attacked. Necessary ecologically the flow is not prescribed, and the guaranteed is not controlled. When planning, design and construction of SHPPs do not sufficiently consider the impacts and consequences on spatial, social, environmental and economic plan, which especially refers to protected areas³⁵.

In the RS energy efficiency in area of final energy consumption and energy sources is regulated by two laws: Energy Law and the Efficient Use of Energy Law. Though not a member state yet, RS has transposed in its energy legislation the EC relevant directives.

According to EU obligations RS has set a national indicative target of 9% for reducing final energy consumption by 2018. The energy saving target in the Third National Energy Efficiency Action Plan for 2016-2018 (NEEAP) was nearly reached, but in order to have a better result in fulfilling the current 4th NEEAP, additional implementation capacities should be mobilized.

In conclusion, though not a member state yet, RS applies the relevant EU directives in its energy policies which is a prerequisite for a parallel movement of both countries to permanent reduction of greenhouse gas emissions, to higher volumes of energy from renewable sources and to better energy efficiency indicators.

8 INSTITUTIONAL CAPACITY AND INTERINSTITUTIONAL COOPERATION, SUPPORTED INITIATIVES DURING THE 2014-2020 PERIOD

The institutional capacity in the CBC area is considered in the context of interinstitutional cooperation and cohesion by reviewing the funded operations by the INTERREG-IPA CBC Bulgaria – Serbia 2014-2020. During the 2014-2020 programme period there are 98 projects funded and proportionally addressed through investments (47) and soft measures (51). The responsibility of being a Lead partner in the cooperation is taken by institutions and organisations

³⁴ <https://balkangreenenergynews.com/serbia-doubles-renewable-energy-production-in-2019/>

³⁵ Information and assessments of the Regional Development Agency "South", Republic of Serbia



from both sides of the border. The inter-municipal and interinstitutional CBC projects between establishments are 53. Most of them are under PA1 Sustainable tourism followed by PA3 Environment, with a strong emphasis on investment, demonstrating the institutional liability and capacity on the topics.

Half of the projects between NGOs, academic and cultural institutions are under PA1 Youths (21) and the rest under PA1 Sustainable tourism (18) and three initiatives performed under PA3 Environment. Nearly all of these co-operations are delivered by soft measures. One-quarter of all projects for the period are carried out by more than two partners being almost equally distributed in the three priority axes mainly as soft measures.

Overall, the accomplished Programme operations evidence the diverse needs and potentials of the area. The recognisable accent on Sustainable Tourism and Youths represents the socio-economic challenges and opportunities to be addressed with citizen partnership. The engagement of all types of stakeholders and bodies in the implementation of the objectives affirms sustainability by social participation.

9 IDENTIFIED NEEDS AND DEVELOPMENT POTENTIALS

The analysis of the CBC region revealed a *complex need of accelerated development and insufficient own potential* to provide the resources and energy to catch up at least the median EU economic indicators. The CBC region needs to mobilize its own potential, but targeted outside resources should be envisaged too. On the other hand, the INTERREG - IPA CBC programme 2021 -2027 between the Republic of Bulgaria and the Republic of Serbia will be far insufficient to cover the needs. Therefore apart from development needs, the CBC programme should look for coordination with other sectoral planning documents allocating resources to the subject territories. This is a way to compensate resource deficits by synergy effects and higher efficiency.

The Strategy for Integrated Territorial Development of the CBC area between the Republic of Bulgaria and the Republic of Serbia will be targeted to selected development needs utilizing selected CBC region own potentials. Proper selection of targets is crucial for the success of the CBC programme. To provide a base for proper selection, the whole picture of development needs is revealed below:

Identified development needs of the CBC region:

9.1 Develop transport/urbanization axes in the CBC region

The northern branch of the main Western Meridian Urbanization Axis of Bulgaria (Vidin – Montana - Vratsa – Botevgrad) is hindered to utilise its favourable development factors due to serious delays in completion of Hemus highway and the speed road Vidin-Botevgrad/Sofia. The same refers to its continuation from Sofia to the south along the Struma highway down to the border with Greece (still in construction).

Analogical urbanization axes in Serbia are formed along the highway from Niš to Bulgarian border (recently completed section of A4 highway from Niš to the Bulgarian border, continued by the Europe highway to Sofia (still under construction) and from Niš to the border with Northern



Macedonia (recently completed section of A1 highway from Grabovnitsa to the southern border). This axis is not well developed yet to the north (to Knjazevac, Zaječar and Bor). The same is the axis that connects Niš to Priština through Toplica region.

Summarised, the spatial structure of the cross border region has two outstanding urban centres (though having different ranks) – Sofia (first rank) and Niš (second rank). In both countries, the “north-south” axes are not completed yet in terms of high class roads and improved accessibility. *Strategic for the cross-border region is the section “Niš- Sofia” of “Orient/East-Mediterranean” TEN-T corridor, which is expected to be fully completed soon.*

9.2 Environment

The environment in the area is assessed as having a *high degree of sensitivity to climate change*. Droughts, floods and forest fires are potentially significant risks in the area. *Prevention and joint management measures are needed to diminish these risks.*

9.3 Demography

The continuous negative dynamics in both CBC region parts is due to negative natural and mechanical growth rate. Following national trends, the CBC region population is continuously ageing over the last few decades. As a result, the human potential for economic development, especially in rural peripheries on both sides of the border is constantly decreasing. There is a *crucial need to attract young qualified specialists by attractive employment and housing opportunities “garnished” by improved access, decent social services, teleworking conditions and clean environment. The last being a strong potential of the subject area.*

9.4 Density of population

Low densities of population hinder equal accessibility of scattered population to reasonable quality social services – health care, education, culture, sports and even shops. *Integrated measures should be undertaken to improve mobile and distance services, communications and condition of road network. The last can be treated as an example of integrated intervention.*

9.5 Local economies

Weak local economies are more likely to suffer from income losses as a result of quarantines and/or disruptions in economic activity. Both countries *need to adopt decisive recovery measures* to increase productivity by at least 4% per year³⁶ in order to catch up with average EU income levels and boost shared prosperity. An important aspect will be the *introduction of a “green growth” program to their post-COVID-19 economic recovery efforts* while responding to challenges that include a shrinking population, labour shortages, and negative impact of climate change.

9.6 Poor/weak municipalities

There is dramatic income disparity at municipal level. However its impact may be controlled

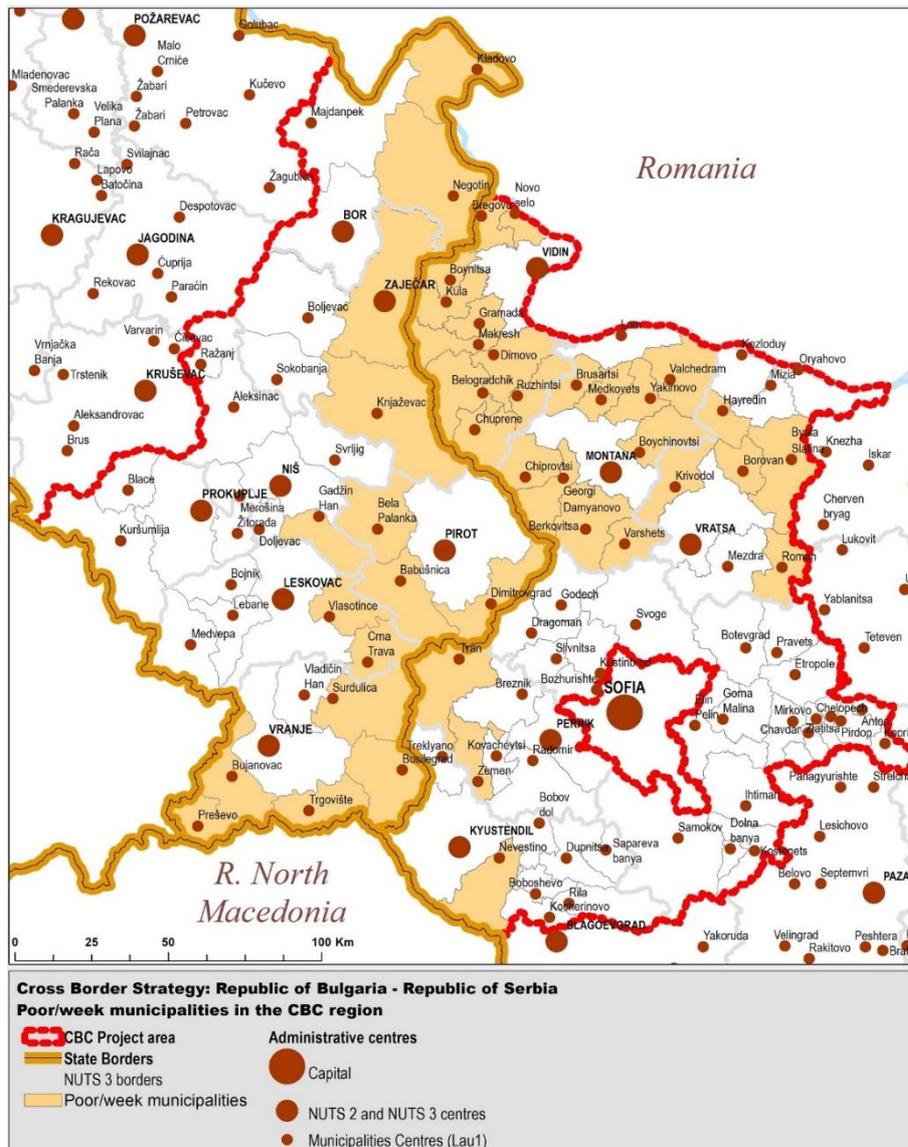
³⁶ The World Bank assessment

through active *targeted economic and social cohesion measures, including direct support to SMEs.*

In Bulgaria there are identified *functional areas for targeted social measures called “social areas”*. The targets of support in the Bulgarian part of the CBC region by mainly social measures are several groups of 3 and more neighbouring/close municipalities without proximities to a NUTS 2 centre, belonging to the “border” and/or “mountain” groups – in Vidin district – 10 municipalities, in Montana district – 9, in Vratsa district - 3, Pernik – 2, Kyustendil – one. As seen from the map below, almost all Bulgarian municipalities, bordering the CBC area, belong to the group of weakest local economies.

Meeting the identified needs for improved quality and range of the common interest services in such areas will contribute to achieving the core objectives of the EU for reducing inequalities, improving public infrastructure and quality of life in remote areas.

Map 12: Poor/weak municipalities in CBC region



Source: National statistics BG and RS, 2019

The lack of analogical information for the Serbian part does not allow data based assessment, but



an expert's assumption would be that the Serbian municipalities adjacent to the CBC border line belong to the same group of weakest local economies having the same needs.

9.7 Restructuring of industries

The industry on both sides of the border is represented mainly by mining, being a leading sector in the past and still keeping its most important part in the regional industrial production. Next in importance scale are energy generation, metallurgy and machine engineering, chemicals, textiles, tobacco industry. Industrial production had a substantial drop during transition period resulting in restructuring, privatization and closing of whole industries. Probably they will be never recovered.

Today there is a sharp need to increase the attractiveness of the CBC area for foreign direct investment through appropriate interventions like provision of business infrastructure (industrial parks). Meeting the needs for retraining of employees in declining industries, that do not cover environmental standards, will open up new opportunities for adequate employment on both sides of the border.

9.8 Global Competitiveness Index

The Global Competitiveness Index report illustrates that *enhancing competitiveness remains key for improving living standards*. The figures from 2019 edition show that Bulgaria performs better in Macroeconomic stability, Labour market conditions, Financial system and the Innovation ecosystem indicators. At the same time, the figures for the following pillars show a *need for improvement: Infrastructure, Health, Product market and Business dynamics*. Serbia's performance is mixed, with significant progress in some dimensions while losing some ground in others. Among the most improved elements, Serbia advances on Innovation ecosystem, Infrastructure and Labour market pillars.

The cross-border area follows the same path as the national economies, so there are still numerous issues to be solved in the coming period. Despite the differences, both economies *need to tackle certain dimensions, where they rank poorer than the overall score, such as healthcare, education/skills, product markets, financial systems as well as innovation ecosystem maturity*. Among others, ICT adoption remains one of the variables on which both countries have relatively good positions.

9.9 Small and medium size enterprises (SMEs)

Both economies rely on large structural enterprises though the SMEs are highly prevailing in number. Namely they could become the subject of direct support under the new CBC programme by establishing *competence centres* to:

- Increase project application competence - for successful attraction of funding from EU and national financing programmes;
- Provide “tailor made” support for implementation of digital technologies;
- Train in management, marketing, digital and other competencies;
- Support for implementation of circular economy models;
- Encourage creativity and entrepreneurship – how to start new productions or services, how



to survive in highly competitive environment;

- Provide actual information on markets, technologies, innovations and available donating/financing programs;
- Support economic development through research, development and cooperation among the participants of the quadruple helix approach³⁷;
- Innovation-oriented education and entrepreneurship;
- Internationalization of the economy through inclusion in regional and global value chains.

The Regional Development Agency (RDA) "South", Republic of Serbia, suggests to use the existing network of Regional Development Agencies in Serbia as competence centres in support of SMEs. There are four of them active in SR CBC area, already supporting SMEs (through national programs). Another motive is the availability of significant databases of SMEs in the region and the fact, that RDAs are accredited by the Ministry of Economy. If approved, RDAs could easily enrich the service portfolio with proposed activities related to green growth, digitalisation, circular economy, innovations.

A common need of SMEs is investment support for technological renewal, digital transition and energy efficiency measures.

9.10 Tourism – what is needed to utilise available resources

Unlike mass forms of tourism, that can be compared to a factory production, alternative forms are much more difficult to create, to market and sustain. This makes tourism in the CBC area “fragile” and vulnerable in withstanding the competition of analogical destinations. Further, attitude of local communities to their environment and tourist products is crucially important to attract foreign tourists³⁸. Summarised, the *needs of tourism development in the subject area are:*

- Attract professional capacity in creation and marketing of regional tourist products;
- Assess the feasibility of potential tourist resources to become real ones, i.e. elements of marketable tourist products;
- Invest in preservation, exposure and animation of cultural and natural heritage sites with proved potential to attract tourists;
- Attract professional tour operators’ companies in the area by creating professional tourist products;
- Strengthening local and regional organisations and companies to approach international tour operators and tourist market in general;
- Upgrading ecological and behaviour culture of local communities – to maintain clean and safe environment, to make tourists feel the traditional Balkans’ hospitality by promoting

³⁷ Describes university-industry-government-public-environment interactions within a knowledge economy

³⁸ The transit area along Niš-Sofia corridor (Via Militaris region) could be an example for integrated development. Through Kalotina/Gradina cross border, 3 million people pass every year. Even if only 1% are attracted to visit attractions along the road, it will bring noticeable benefit to the CBC region.



and supporting sustainable tourism practices;

- Provide incentives for development of domestic tourism in the area – starting with marketing information and direct marketing platforms and ending up with market promotions;
- Joint efforts in developing regional CBC tourist products;
- Creating an own inter-regional CBC market, including tourism - a strategy that can lead to sustainable growth;
- Creating joint marketing platforms for better international recognition (a recognizable brand).

9.11 Unemployment

Unemployment in both sides of the CBC region is higher than relevant national averages. Intra-district disparities are dramatic in the Bulgarian and relatively smoother in the Serbian part. There are many hindered and blocked local economies on both sides. A strong correlation between unemployment, economic performance and demographic processes is revealed. The region as a whole loses demographic mass/energy and economic attractiveness. To tackle this problem it is needed to:

- For the poor and weak municipalities to target *measures with predominantly social character* (to provide fare access to social services), reinforced by *measures providing direct employment* (as “social enterprises” for example). Urgent policies and measures to address the shortage of qualified staff, especially in the areas with higher unemployment;
- Obviously the needs in terms of employment exceed the future CBC programme resources and *cooperation should be looked for with relevant national targeted policies* to obtain feasible and sustainable results.

9.12 Healthcare

A general *need is to overcome regional imbalances* and ensure the functional interaction between the different levels of medical care. Further, improvement in terms of access and quality as well as assuring availability of health services in small settlements is crucially needed too. Namely difficult and scarce access to health services in remote rural areas is the core problem and hopefully it will be solved somehow after being addressed by relevant sectoral policies.

Processes like population decline, ageing and depopulation of some peripheries, aggravated by poorly maintained transport infrastructure, accumulate difficult challenges for the healthcare systems of both countries to overcome. It might be useful and reasonable to plan equipment and staff for mobile healthcare services including a sanitary helicopter for joint emergency operations in difficult access areas.

9.13 Education

Due to continuous negative demographic processes, the number of school facilities and students continues to decrease, requiring permanent restructuring of school networks. Considerable shares of children on both sides are not covered by pre-school education. Shares of early school leavers



decrease in both sides but the Bulgarian is still much higher than the Serbian. Again, targeted measures are needed to tackle all these problems.

It can be stated that both CBC sides are well provided for potential higher education staff. Still *attractive employment and decent remuneration* are decisive factors when young specialists choose a location to establish. *Migration abroad or to bigger cities* and not availability of a higher education facility is the big issue.

A new challenge aggravating education results is the distance/virtual form of training/learning imposed by recent and continuous lockdowns caused by the Covid19 pandemic.

9.14 Cultural heritage

Most of the cultural heritage monuments are in disrepair and *need enormous investments for restoration and preservation*. In the past years a lot has been invested in culture preservation but still there is a *need of further conservation of cultural heritage*. Further, exposure models of many sites deprive them from attractiveness instead of contributing to it. *Improvements in this aspect (exposure) are needed*. There is a lot to be done in digitalization, filling in a centralized data base, clarification of property/responsibility status, efficient fight against treasure hunting, etc.

9.15 Roads

Road networks are relatively well developed on both sides of the CBC region, but *condition of roads of categories lower than highways is not satisfactory*. Comparatively low economic development on both sides contributes to permanent underfunding of road maintenance that leads to their increased deterioration. Most of the roads connecting small towns and villages (third class or municipal) are in bad condition. *Apart from completion of highway projects in the area, a lot of investments and a new repair and maintenance model are needed*.

9.16 Railways

The border area railway network can be qualified as “substandard” and highly depreciated. Most of the railway lines (including concomitant infrastructure) there *need complete reconstruction to cover contemporary standards*.

9.17 Border crossings

Though 4 out of 5 cross border operational checkpoints in the subject area provide only local and regional exchange of traffic, they all need to react adequately to constantly changing requirements by improvements in efficiency and speed of border services, while maintaining and upgrading the level of security.

9.18 Inland waterways

Recent decades are marked by big fluctuations of the Danube river level in the BG border area, especially extremely low water levels leading to diminished efficiency and intensity of water traffic. To overcome the issue, *expensive facilities need to be built along the Bulgarian – Romanian sector of the Danube river* which is far beyond the capacity of a CBC programme.

9.19 Water supply and sewerage



Despite of recent efforts, the region still lags behind the national average indicators on access to WWTP, on waste collection and other basic indicators on environment condition. Water supply in the subject area can be considered for a nearly solved problem but the same does not refer to sewer. The common lack of WWTP or other wastewater treatment *facilities continues to generate serious ecological problems including pollution of water and soils.*

9.20 Waste management

Waste management in the Bulgarian part of the subject area covers EU standards while in the Serbian part it is still one of the most pressing environmental challenges. There is no sanitary landfill in the municipalities of Kursumlija, Zitoradja, Gadzin Han and Crna Trava. In fact, only 60% of solid waste is officially collected and the rest is dumped illegally. Many landfills are located either on a river bank or in a vicinity up to 100 m or too close to human settlements. *A lot more is needed to develop the waste management system in Serbia to levels that meet current EU standards.*

9.21 Renewable energy and energy efficiency

The current energy policies and measures consider the priorities and guidelines of the new European energy and climate policy. As a whole, the natural conditions for production of energy from renewable sources in the CBC area are modest. The passive side - *energy efficiency* is policy priority too, but to achieve the goals set ahead, *the pace of its improvement needs to be accelerated.*

9.22 Ecology

Air - pollutions have only local character and concern only certain parts of settlements. Trans-border pollution is impossible. Generally, the region has clean air, which is a fact, favoring all human activities. To reduce seasonal air pollution with PM10, *measures and considerable investments are needed to encourage abandonment of solid fuels for heating, to modernize road transport and improve the condition of adjacent infrastructure. Further, innovative and integrated systems for qualitative-quantitative assessment of air quality need to be developed.*

Water - surface waters' quality in the CBC region continuously improves during the last two decades. Quality of waters in the Serbian border section of the Danube river meet the requirements for good/excellent condition. As for the Timok river, its condition continues to be bad. The 32 km section in the BG-RS border area is continuously and heavily polluted with heavy metals. Groundwater bodies traditionally suffer from nitrate pollution notwithstanding the continuously increasing control on fertilizing. The insufficient number of water quality measuring stations hinders a more precise assessments. *More water quality measuring stations are needed.*

Soil - Soils in the are traditionally in a good ecological condition. Radiation is inconsiderable, except in some locations in Serbia polluted from NATO bombing in 1999. Partial treatment of such locations has been done, but the issue is that in the course of more than 10 years monitoring has not been performed. It can be stated that the risk of radiation pollution (from depleted uranium) of soil and groundwater still exists. *A new monitoring process is needed.* Water erosion is the most pressing issue on both sides of the subject area, especially in mountainous areas. Wind erosion is considerable in plains. *Relevant measures against soil erosion are needed.*



9.23 Protected areas

To enable efficient application of nature protection legal framework as well as valorization of natural heritage by tourist products, *raising of ecological culture among local communities is needed.*

Looked in sectoral policy details, nature protection needs much more:

- Building and strengthening institutional and human capacity for biodiversity protection;
- Increasing areas under protection and their management efficiency;
- Work on establishing ecological networks;
- Integrating biodiversity and nature protection issues into other policies;
- Prevention and mitigation of ecosystem pressures;
- Promotion of the economic value of biodiversity and its preservation;
- Integration of biodiversity policy into local plans and agricultural and forestry policies;
- Increase people's awareness of the importance of nature, biodiversity, landscape and their economic and financial value;
- Nature protection and valorization of natural potentials for conservation and rational use of natural resources;
- Assessment of ecosystem services;
- Higher level of professional education and training in the agricultural and forestry sector and diversification of the economy of protected natural areas;
- Development and implementation of agri-environmental measures to reduce the negative impacts of current agricultural practices on species and ecosystem diversity;
- Support for the work of civil society in the field of nature conservation and sustainable development;
- Development of new products and programs through the application of an area-based approach and community-led local development Leader approach.

9.24 Climate change

Climate change has substantially increased the occurrence of climate and weather extremes, including heat waves, heavy precipitation, floods and droughts. Climate change is creating risks to, and in some cases opportunities for, the environment, the economy and people. Bulgaria and Serbia are among countries with increased risk of climate change, including all above weather extremes and the negative consequences. On both sides of the CBC region there are many flood risk zones. Only territories adjacent to the Danube river and along the Timok flow are threatened by trans-border floods. *What is needed is to continue mutual efforts in prevention and management of forest fires as well as flood risk measures.* Implementation of climate change mitigation and adaptation measures is a prerequisite for sustainable development in the CBC region.



9.25 Institutions – interaction, capacity building needs

The continuing need to improve institutional and technical capacity to adequately respond to logistic challenges related to intensive traffic along the transport corridor Nish-Sofia.

10 DEVELOPMENT POTENTIAL

As seen from the above section, the revealed needs are thorough, of large scale and different in time and resource requirements. Similar would be the picture of development potential in terms of available own resources. Minding the CBC programme restricted resources in terms of time and money, it would be reasonable to start a *selection process* from this point on.

10.1 Tourism

There are available tourist resources with unutilised potential on both sides. There are plenty of common geographical and cultural features presupposing potential for common/regional tourist products like Jerma Gorge, Constantine the Great residences in Niš and Kostinbrod, Stara Planina and many more. Promoting and supporting sustainable tourism practices. Though in conditions of pandemic, tourist products development along with inherent infrastructure can and should be planned because tourism definitely will be among the most efficient recovery instruments after the health crisis is over.

Here is the place to repeat the thesis motivated in many sectoral analyses and planning documents: “Cultural tourism is among the priorities of the tourism policy due to the huge untapped potential it has”. The CBC region has potentially competitive market niches for this kind of alternative tourism too.

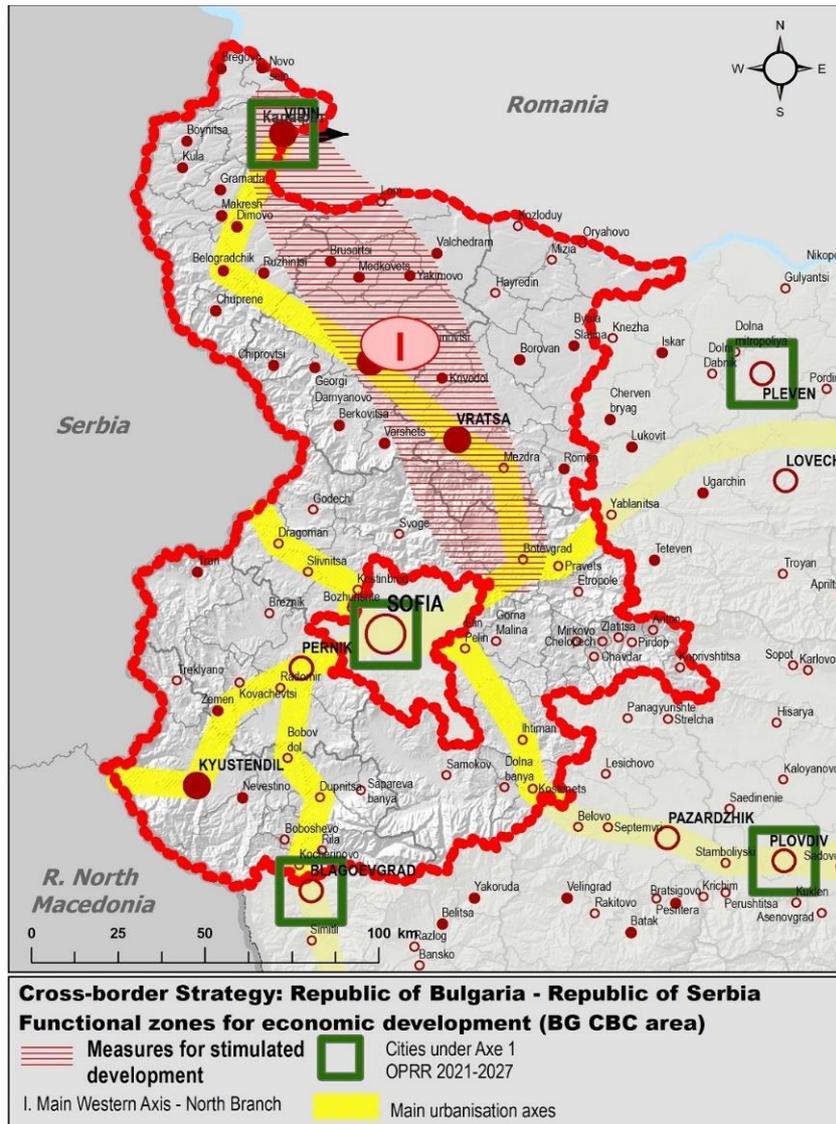
10.2 Functional zones for economic development

District centres are the natural “engines” of regional economies, concentrating most demographic mass and economic activities. Namely they should become the locations for the future integrated territorial investments fostering balanced spatial development through synergistic effects.

Minding the natural barriers (mountains) along the border in the CBC region, connections of both national road networks are either missing or realized through a low category road. The only exception is the A4 highway from Nis to cross border check-point “Gradina – Kalotina”, continued by the “Europe” highway to Sofia. And this is the most developed cross-border transport and urbanization corridor - “Nis – Sofia”.

Minding the modest scale of the future CBC programme resources, locations of eventual integrated measures should be looked for along well-developed cross-border transport corridors which are usually axes of regional/spatial development. *Namely there (e.g. in Dimitrovgrad border area) a reasonable and feasible potential for development through building of industrial zones exists.*

Map 13: Functional zones for economic development in Bulgarian CBC area



Source: National Concept for Spatial Development for the period 2013-2025, 2019 Update;

10.3 Border crossings

A new positive trend for improving regional accessibility is the agreement for opening of three new border crossing checkpoints between the Republic of Serbia and the Republic of Bulgaria: Salash - Novo Korito (crossing at “Kada Boaz” pass, west from Belogradchik), Transka Bankya – Petachinci³⁹ (where Yablanitsa river flows into Erma river, still there are many relatives on both sides), and Treklyano – Bosilegrad (as others, motivated with close traditional relations between neighboring municipalities). Today 4 out of 5 operating cross border checkpoints provide only local and regional exchange of people, goods and money flows. The same relates to the 3 new

³⁹ This is very important for CB tourism, since in high seasons when border is crowded with Turkey citizens on their way from western Europe to Turkey, BG or SR citizens from the CBC region have to wait 12 hours just to cross the border. Therefore, CB tourism activities or short visits are almost impossible during the summer or holiday season. This crossing will be useful for commuters from Dimitrovgrad municipality working in Sofia too.



checkpoints - agreed and not developed yet. There is no capacity there for large scale and intensive traffic, but *potential for mutual contacts, business and tourist products exist for certain*. And, to our notion, this is the essence of cross-border cooperation.

10.4 Energy efficiency measures

Among the identified areas with greatest *energy saving potential* are the housing sector, transport, industry, energy generation and transformation processes. Though not a member state yet, Serbia applies the relevant EU directives in its energy policies which is a prerequisite for a parallel movement of both countries *to permanent reduction of greenhouse gas emissions, to higher volumes of energy from renewable sources and to better energy efficiency indicators*. The “energy efficiency” topic should be a “red string” in any future investment project under the CBC programme too.

10.5 Water management

Danube: The water resources availability aspect is favourable for both sides of the CBC region. Due to its diverse relief, the Danube River Basin, has a varied precipitation levels that strongly affect run off and discharge levels in streams. Apart from their commitment to comply with EU water and environmental legislation, Bulgaria and Serbia are effectively involved in trans-boundary cooperation within the frame of international conventions, particularly within the Danube river basin. As signatories to the Danube River Protection Convention, *both countries have agreed to co-operate on fundamental water management issues* by taking "all appropriate legal, administrative and technical measures to at least maintain and where possible improve the current water quality and environmental conditions of the Danube river and of the waters in its catchments area, and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused."

Mineral waters: Further, larger part of geothermal energy is used for swimming pools, bathing and balneology. Other small capacity is used for buildings' and greenhouse heating systems. Even though there are still persistent technical and financial difficulties in using geothermal heating systems, a number of projects for geothermal heating station, district heating and geothermal water network in Sapareva Banja and Kyustendil have already been initiated and prepared. The results of those projects is expected to form the basis for *promotion of systematic use of geothermal energy* both in Bulgaria and internationally, while allowing the region to benefit from the transfer of knowledge of best applicable technology and most appropriate financing mechanisms.

Pollution: Another potential/need is initiating joint actions for reduction of transboundary pollution, such as water pollution of Timok, Nishava and Jerma rivers.

10.6 Environmental protection and tourism

Both counties apply EU legislation for protection of natural values which is a basic prerequisite for implementing of an eco-system approach to exploitation of natural resources in both, protected areas and areas free of ecological restrictions. The region has rich biodiversity and reasonable nature protection. Some of the protected sites are on both sides of the BG-RS border which is favourable *opportunity for joint presentation, management and use*. In resource aspect, both countries' parts can rely on valuable natural heritage with preserved nature and minor ecological issues. Rich biodiversity, clean rivers, thermal springs and attractive natural complexes on both sides are potential resources for joint tourist products.



11 CONCLUSIONS

Both sides of the CBC region have *comparable level of development*. On municipal level, there are dramatic disparities in the Bulgarian part (up to 53% unemployment) and more even development in the Serbian.

Analogical needs in the sphere of integrated development (both in urban and rural areas) are revealed. They include the wide range of social, economic and ecological development as well as attention to bridging cultural heritage to next generations by investing in research, restoration and exposure.

Transport corridors are usually urbanization axes concentrating economic and social development energy. The integrated territorial strategy (ITS) will rely on the completion of the Nis – Sofia transport corridor, being the strategic urbanization axes for the CBC region.

The ITS should take into account both the objectives and priorities of the new cross-border and territorial cooperation documents, the identified needs within the CBC region, the logics of spatial development and the modest CBC programme resources.

The future CBC Programme *can't be entirely independent*. To achieve synergetic effects and sustainability of its modest investments, the Programme should be coordinated with other planning documents⁴⁰ and resources targeted to the subject area.

Having in mind the intention to identify locations for integration of investments, the main challenge will be to meet the 'bottom up' and 'top down' approaches of the Programme in such areas with proven development potential and available investment interest, where additional assistance from the states will be needed for the basic infrastructure.

And finally, at any further stage of elaboration of the ITS, the fact that revealed *needs exceed many times available resources* (both, in terms of money and time) should be considered to avoid over budgeting, scattered "dot like" investments and further inefficient spending of money and human energy. As for the potentials, looked at as available resources, the most outstanding are the natural and cultural heritage on both sides. But to be valorized by marketable tourist products, considerable investments and supporting factors have to be provided for.

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⁴⁰ Like spatial development strategies, sectoral policies and programs of both countries, plans for integrated development of subject municipalities.



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